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5th Floor, Hunt Library
Carnegie Mellon University
4909 Frew Street
Pittsburgh, PA 15213-3890
Contact: Archives
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

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About the Institute

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

BRAZILIAN
EXPLORATIONS

1913-14
VOL. II

WILSON
POPENOE

Mango² Description 437
General form
Cross section
Size 40792
Weight 437
Measurements
Stem
insertion length, character.
Base
Shoulders
Character
Cavity, form depth breadth markings
Apex
form
Nak location + size
Surface
texture color dots.
Skin
texture thickness adhesion
Flesh
color aroma texture juice
Flavor
Quality
Seed
form size
Remarks
Season
Characteristics of growth
and Productiveness

1. 32- $\frac{1}{2}$: View in front
 Box 1/2

Nos.

4-7

Laemmert & C.
 66 Duvidor

Historia das Plantas
 Medicinas e Uzes do Brazil
 Procholt.
 Flora do Brazil
 M. Das Correa

Tela de Arame

Convalaria japonica
 Stenotaphrum glabrum
 and var. variegata.

4. 64- $\frac{3}{4}$ sec. City trees
on avenue, shrub in
background
5. 32- $\frac{1}{2}$ sec. Annonaceous
tree in park
6. 45- $\frac{3}{4}$ sec. *Ficus*
tree in Bera Mar.
7. 45- $\frac{3}{4}$ View thru walk
Park in Bera Mar.
8. 45-1 sec. Bamboo
walk in same park
9. 32- $\frac{1}{2}$. Single City tree
10. 45-1 sec. *Bauhinia*
avenue Quinta Boa Vista.
11. 64-2 sec. *Tamarind*
drive. Quinta Boa Vista.
12. 64- $\frac{3}{4}$ sec. *Ipê* in
Quinta Boa Vista

Rio Jan 2, 1913

To Botanic garden.

Pavonia varicans
hirsuta - like *liba*
plant growing along
Rio São Francisco
3-4 ft. leaves ash gray,
bristly.

Shoep got
Enneizatis
myrtacearum
Brasilensis

by Hjalmar Riiser-Larsen
Bry. Warming
Copenhagen
1895

Ficus found in São
Paulo off Sta Catharina

442 Rio de Janeiro Jan 4 1913
Collections of Herbarium materials

No 1. Bignoniaceae. Vine
growing on hillside, car
line below Internacional.
Flowers lavender.

No 2. Tree 40-50 ft, upright.
Bark fairly smooth
ash gray. Same loc.

No 3. Small tree, 25 ft
spreading, open habit.
Shade sparse. Bark
thick, grayish
brown. Same loc.

No 4. Arborrescent shrub,
15 ft. Spreading in
habit. Same loc.

No 5. Large tree, 40-50
ft upright. Trunk
6" 9 ft in diam. Smooth
or merely saggy
brown.

443
No 6. Shrub, 10-15 ft
upright, dense foliage.
Flowers white and blue.
Car line below Internacional.

No 7. Surucuaea? Tree 25
ft, upright, trunk
8 in. in diam. Branch-
ing 4 ft from ground.
Bark slightly rough, trunk
thorny. Same loc.

No 8. Melastomaceae. Spread-
ing, open shrub 8 ft
flowers purplish blue.
Tree below Internacional
in dry rocky situations.

No 9. Bignoniaceae. Tall
tree 50 ft. Same loc.

No 10. Bignoniaceae. Climber
on top of tree 40 ft
high.

No 11. Leguminosae. Tree
40 ft. Acacia like.
Fls very fragrant
yellow. (old tree)
60 ft, bark rough.

corrugated, brown leaves
 whorls of 4, stems septagonal
 Odor of honey-suckle

Rio Jan. 5, 1914 Mon. 445
 10 nursery of Eickhoff
 Carmo, Lda & Co, 228 rua Had-
 dock foto + 136 St. Alexandrina
 Inaburba

Tree 25 ft high, slender
 Common in thicket around Rio

Mangie

A small fruit in Bahia
 size of an egg, black, candi-
 florus. Not grown in So.
 Brazil.

City for fruit

Also grown in Bahia &
 not in So. Brazil.

Litchi + Mango

Sen. Gaudin wants infor-
 mation re obtaining
 Indian mangoes & various
 vars. of litchies, through
 the States. Says when
 importation is made from
 beyond direct the plants
 will not get them in
 good shape

Mangos

Fruits are best in dry season. Says Chimata at Pernambuco where Rosa is grown in dry, and accounts for perfume from perfume of fruits in market. Thinks best flavored kinds here are Augusta & Carlota. Rosa not very good here. *Stamaraea* one of the best.

Jayon

Quilera says there is a good fruit. Plant in nursery does not bear, but he has seen fine fruits grown here in Rio. Says there are a few plants in town. Says it is better adapted to a cooler climate, like that of Montevideo.

Rio de Janeiro, Jan. 5, 1914. 447

Mango *Stamaraea*

Specimen from nursery of Eickhoff, Carneiro Leão & Co, and another from Hotel Internacional.

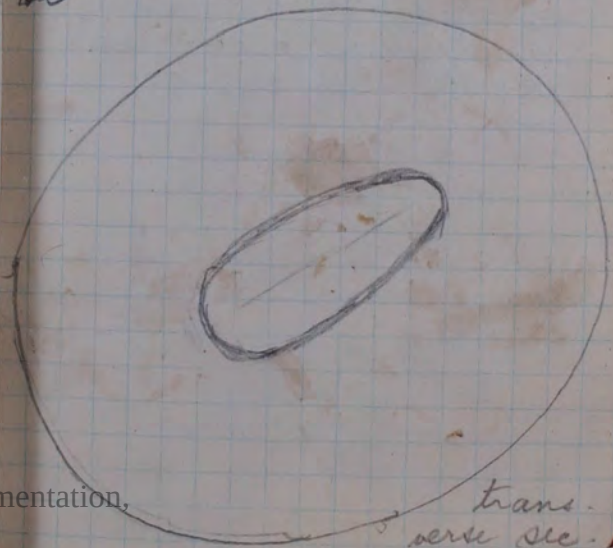
General form oblate, cross section oval; size medium small to small weight 200 grams, length $2\frac{1}{2}$ ins., breadth $3\frac{1}{2}$ ins., thickness $2\frac{3}{4}$ ins. Stem 4 ins. long, medium stout inserted to ventral side of center of base; base flattened, broad, cavity none to shallow, deep, and flaring. Both shoulders rounded, ventral not as broad as dorsal, apex blunt broad, the neck a slight prominence $\frac{3}{4}$ inch to ventral side of longitudinal apex. Surface smooth & slightly undulating. Color yellowish green, (C. C. 278)

with dull orange on
base, + much russeting
over basal part of
fruit, skin moderately
thick, firm, rather easily
separated from flesh,
not easily broken,
flesh bright orange yellow
in color, mildly but
very agreeably aromatic,
firm, not very juicy nor
very fibrous, flavor
sweet but rather spicy
and very rich, quality very
good. Seed obliquely
oval, $2\frac{1}{4} \times 1\frac{1}{2} \times \frac{3}{4}$, fibers
short on body, long only on
ventral shoulder of seed,
monoembryonic.

One of the best mangoes
I have eaten in Brazil
and free from fiber than
most of the others. Not
attractive in appearance.



lat.
sec.



trans.
verse sec.

"Bambergreen Oil"

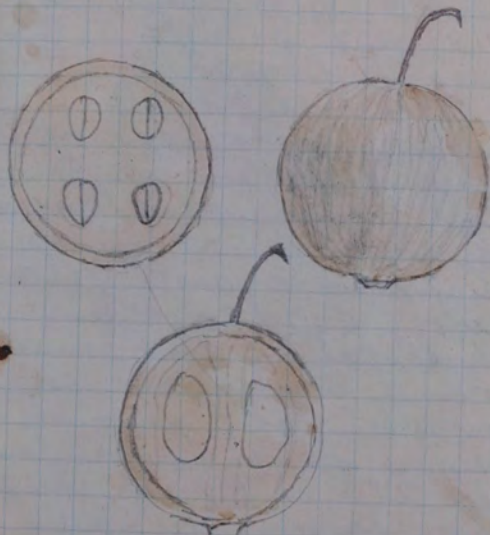
Dr. Willis showed me a bottle of oil called by the name. It is an improved Citronella. Bamberg's green of Paradenya got it up. It is Citronella with the camphor oil and. Perosene added and has the advantage over plain Citronella that it does not evaporate so quickly. Is now sold by the chemists.

Rio, Jan. 5, 1914.

Jaboticaba.

Myrciaria jaboticaba?

Specimens obtained in market



See page 418 for notes on the same variety, but smaller specimens.

Rio de Janeiro
Jan 6 - 1914. Tues.

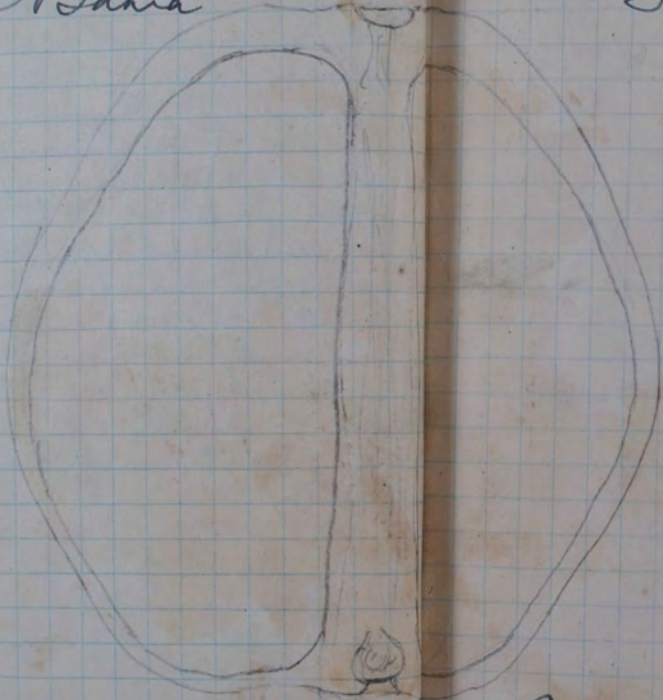
Laranja de Umbigo
from Bahia. Fruit
from Cel. Demetrios or-
chard (?) picked Dec. 10
1913, and brought to Rio
in our baggage.

When picked it was
green in color but at the
present writing it has
lost nearly all traces
of green, and is a
uniform orange yellow
color C.C. 176, and has
developed a faint navel
orange aroma such as found
in the Calif. product. No
signs of fungus or decay
on the fruit. The skin
has become slightly
wilted in texture. As
shown by decoloring of the
fruit on next page, the
skin had become worn
then toward the apex
of the fruit. The

flesh is bright golden
in color, a little
brighter, it seems to
me, than is the case
with most of the fruits
fresh from the tree
which I have seen in
Bahia. The juice is
very abundant and
ran out of the fruit
on cutting it. The
flavor, however, is not
good, having a taste as
though the fruit had
been kept too long &
had begun to decay, -
a musty unpleasant
taste.

454

Laranja de Umbigo
from Bahia



455

In description see
page 452

Weight 500
grams.

Rio de Janeiro
Jan 6, 1914.

456

Rio de Janeiro
Jan 6, 1914.

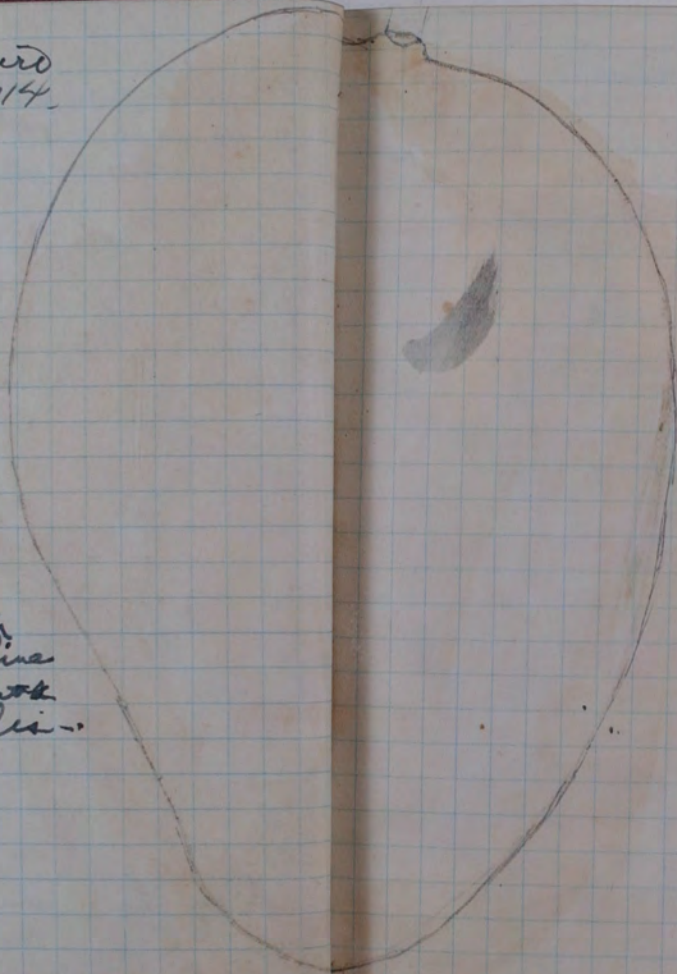
Manga da
Rosa

Largest
specimen
seen.

See next
page

for more
accurate
drawing. In
the outline
the fruit was
slightly dis-
torted.

457



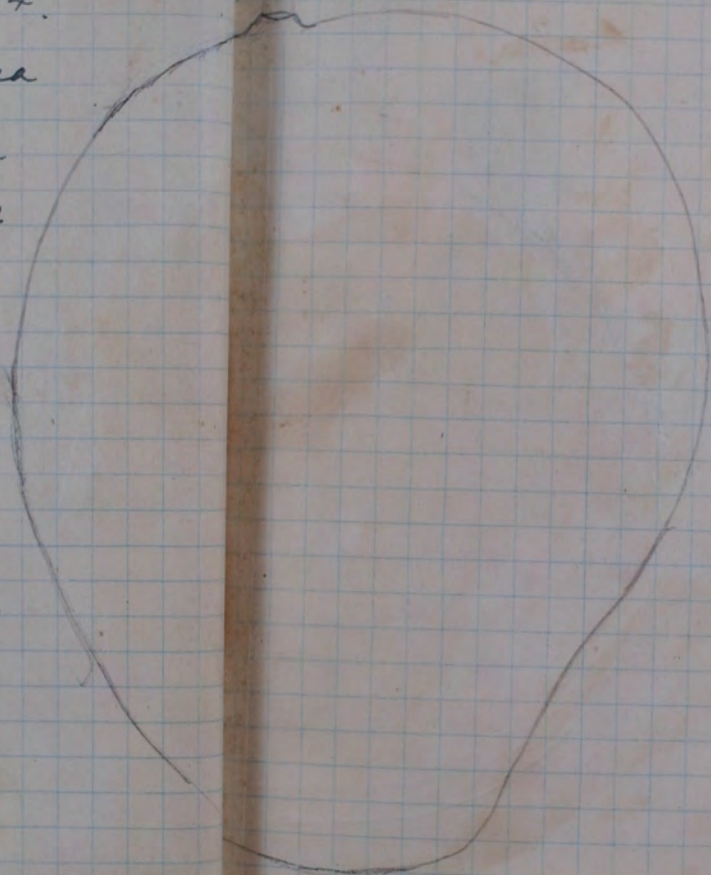
458

Rio de Janeiro
Jan 6, 1914.

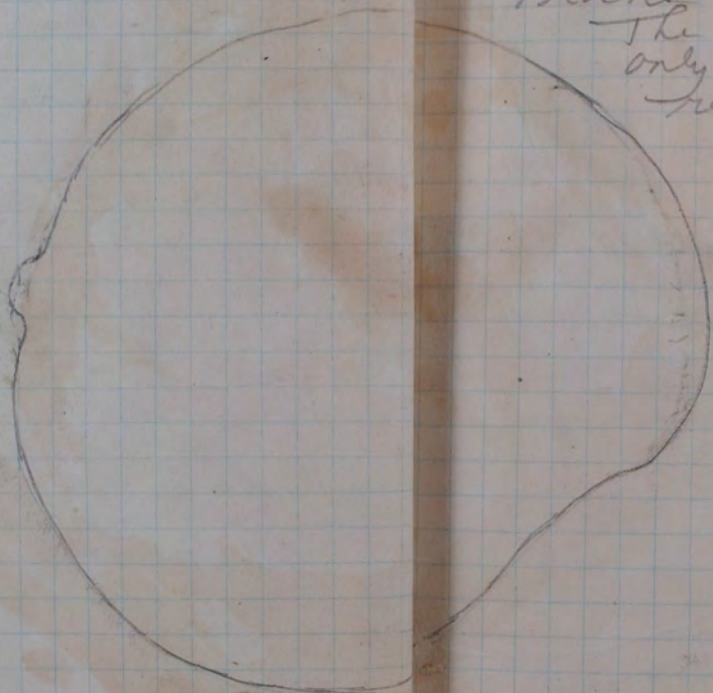
Manga da Rosa

Largest specimen
seen at Rio.
Photographed. This
is an accurate
outline taken
from $\frac{1}{2}$ fruit.
Weight about
600 grams.

459

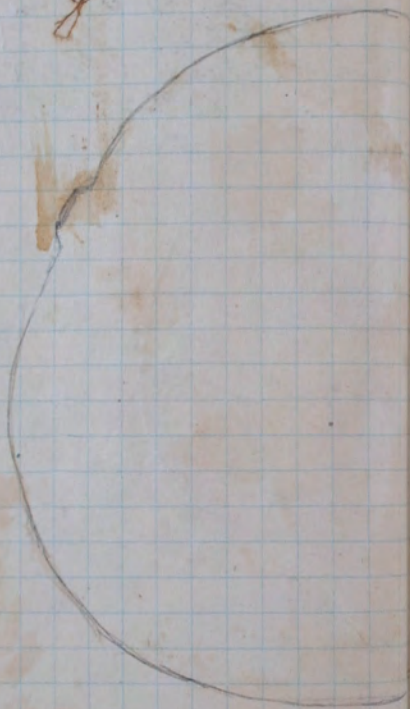


460



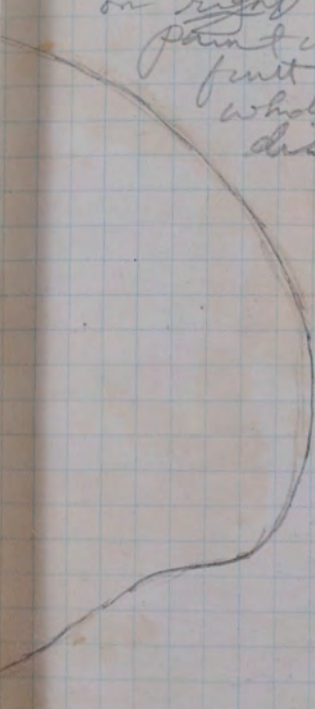
Rio Jan 6 1914 461
 Manga da Rosa
 Outline of fruit
 shown on left in
 Brock's painting.
 The fruit with
 only a little
 red coloring.

462



Rio, Jan 6, 1914. 463
Manga de Rosa

Outline of fruit shown
on right in back
painting. The
fruit with nearly
whole side red
dish.



Jan. 7, 1914

Left Rio de Janeiro at 6 a.m.
for Lavras.

At 6.50 ar. Marambom-
bo, a small station.
Just before reaching
this place we passed
a small orange grove
of several acres and
one line of trees lying
about 1/2 mile back
of the station. These
groves covered a
piece of consid-
erable hill land must
have been 20-30 acres.
A mile further on
passed 300' orange groves.
Rape fruit on some
of the trees, deep
orange in color. This
is quite an orange
district.

Country through here is
hilly, mostly hills 200'

Rio de Lavras
Covered with fairly thick
growth of small trees &
ferns, no high timber.
Land reddish in color
and looks rich.

7.00 at Guimardes small
town. Good many banana
plantations on the hill-
sides. Some maize fields.
Beyond Guimardes land
not so hilly for several
miles. A very pretty
feathery palm (coco?)
as common here. One
growing about 30 ft high.

7.15 began to get
into the Serra do mar
at station of Belem.

7.45 passed thru tunnel.

7.55 at Serra 213.945
meters altitude. The
mountains have no sharp
contours here, and are
at times covered with
small timber, at other times
grassy & otherwise bare.
Very few palms here.

8.05 at Schied
station alt 264 m.

466

Rio to Lavras

leave windows of car open when going thru tunnels. It is just like a tunnel both.

830. At Redcio

alt. 366 m. Passed train of 2 lbs cattle going to Mato Grosso.

845 at end of long tunnel passed a small station 44.6 m. in altitude.

In small ravines lots of *Sedum* *Croton* and a plant which appears to be *the* *thos*.

Tunnels are cut out of solid rock.

845 Santa Anna, alt.

362.700 m. Country hilly, very grassy & little dense timber.

945 at Barra do Pirahy from there following the course of the Rio Parahyba a narrow, shallow stream so far.

Rio to Lavras

467

a m. 70 or 5 men at this station with baskets of mangoes for sale. Fruit of *the* *size*, varying shapes, some *espada*. Some of *agencia* shape.

Country still hilly, but so heavily clothed with vegetation as further back.

hills grassy. Some pine bamboo along the river.

Many small patches of *maize*. Some coffee and very red. Some

large fields of several acres very thinly populated & only a little land in cultivation.

Casal. 1045. Lots of *maize* in valley along river. More dense timber on hills. Few *jacaranda* around houses. Very little land cultivated, *maize* principal crop.

Pass large herd of cattle further on.

468

Rio to Lavras

11.30 Parahyba. Plenty
mangoes offered here, in
baskets of 6 or 7 fruit.
I was asked for the best
one of the basket, for
smaller ones \$0.75 per
basket. Called Espinha
& Rosa, but the Rosa
does not appear to be
the real Rosa.

11.40 Entre Rios. Lots
of new looking young
mango trees in yards
here & bearing good crops
of fruit. Looks as tho
this ought to be a fine
mango country. Not much
ferns on fruit.

At station selling
some mounted birds and
a lot of beautiful
colors, also the only
miniature hen.

12.30 Parahybuna. The
country between the last
station & this has been
drained, and now with
low water, the road is full

Rio to Lavras

469

a number of Capezals,
many of them appearing
to be abandoned, good
deal of maize. Land
still very much the
same as when we left
Rio. In general appear-
ance it is very suggestive
here of So. Calif. in the
rainy season. The
region around Tchaclapi
of between Sta Barbara
& Los Angeles in rough
detail. Several large
granite bays here.
Cactus (Cereus?) begin-
ning to appear. Very
fine Ambrosia along
river. Golden Gulch
must be 40 ft high. A
few palms there here
also.

1.15 p.m. Mathias
B. Gilbasa. 5.16 p.m. Alt.
Lots of Coffee beyond here.
1.30 p.m. Guy de Lora
one of the largest places
we have passed since
leaving Rio. Majority of

the people in our car got
of here. Train makes
about 30 miles an hour.
I should say, but stops
very frequently, and makes
long stops than in
the States. Road bad
hugely rough. Cars go
through. American
style, with cane seats.
So almost no major
new. Daring beach.
no more prominent.
Country about the
same contour, a
little more heavily
wooded. Coffee plan-
tations mostly
disappeared. Lots of
Zebu cattle.

2.00 pm. Bemfica,
Alt. 690. Dairies. Lots
of milk on platform
awaiting ship. Most
considerable maize
fields becoming a little
lower & more level.

2.15 p.m. Chapéo d'Uas
alt. 704 m.

At station kids come out
with doses bananas, eggs,
etc. crying "Alha! Cafe!"
"Alha! Barenas!"

Much of the forest
has been cleaned off, Mr.
Dorsalt thinks.

Saw a number of Lognat
trees in a dooryard, and
also small grove of
jaboticababos, a few
grapevines, & some healthy
looking orange trees.

2.45 p.m. Dalmira, Alt.
837 m. Quite a small
town, comparable to Foz
de Iara. A great place
for dairy products. Good
many gasengery got in
here. Population seems
to be largely white or nearly
so - saw very few negroes
around the station.
Highest point we have
yet reached. Well built
fairly attractive in
appearance.

472 Rio to Lavras

Jacimbe beyond Palmeira
the first Conifers appeared
at May. In an open area
on a hill scattered trees

3.15 hr. Mantiqueira
Alt 878 m. Two of the
conifers already mentioned
at point of station. Many
large conical spires of
Sed. 3-4 ft high and
look like ant hills

3.35 hr. João Ayras
11.15 m. Alt. Araucaria
abundant near here
Almost no cultivated
trees outside of the
village. A little
maize.

3.45 hr. João Ayras train
evidently descending.
More maize & more
houses. Few Cocos
palms - look like
Romans off lava - about
35 ft high.

Reached Sítio at
3.55 pm. Changed

Rio to Lavras 473
Running to João
d'El Rei and Lavras

Saw a small orchard
of pine looking young
apple trees just as we
were leaving Sítio.

Beyond Sítio the
country becomes less
hilly in character, more
or less rolling, with
almost no timber, &
looks more like a
temperate region than
a tropical one. Some-
what resembles the
interior Western U.S.

Oeste de Minas is
narrow gauge, about
1 meter. Disturbed ridge.
Maize, pine and high,
in full blossom.

No palms here. Araucaria
has also disappeared.
Very few houses & very
little cultivated land.

4.45 pm. Ilheus, 24 km
from Sítio. Ten houses
only. Several large
stations. Cilladum's

on bank of stream
just back of station.
Geranium, *Dahlia*,
Gladiolus, *Spiraea*,
Asperula, *Calendula*
in station garden. Peaches
trees full of red fruit
about the size of a
walnut.

Store here says "Difícil
se dá generosa da fruta
para exportação".

Port Ilheus saw 2
slender *Coccoloba* (?) palms
in forest.

Then descending.
Much *Mangifera*, *Mor-
palm*. Beautiful yellow
feathered *Agave* trees
along stream, with im-
mense flower heads
bigger than any *Acacia*.
I saw one. Leaves fine
fringe.

Cecropias all have
been so abundant all
the way from Rio, U.

At Barroso we obtained
some bread made of
mandioca, which was ex-
cellent. It was called
carvilha (?) & the crust
was crisp and tender,
with the inside hollow
as in a good "pop over".
With a taste very
similar to the latter.

6.30 About 25 km.
from São João d'El Rei.

Considerable cultivation
in the valley of the small
river which we have followed
since leaving São. Prim-
ary crops are maize and
rice. Both look fine
and healthy.

Bamboo abundant on
river banks.

Yellow passenger, a drummer
from Rio always addresses me
as "Meester". But talks in
Portuguese.

Evening air cool and bracing
like California.

7.10 pm Arr. São João d'El Rei

At São João d'El-Rei we stopped at the Hotel Costa da Moura, the best in town. Found it very comfortable, the food good & beds clean. Paid 6000 for our supper, including domestic coffee.

We arrived at 6 and after coffee started out for a walk around town. It is quite a scramble & doesn't place, probably fully 5000. And it is a mess. The altitude is 2800m, and the air last night and this morning was cool & breezy - like the night air of Calif. We counted 7 large chimneys in the town. It lies in a small valley between two rows of hills, the river on one side being of rugged granite & fuchs high. A small river runs through the center of the town.

walls. The gardens are full of mangoes, platanos, citrus, agaves, etc. We found two amaranth-like fruits new to us. Both were called Arroz, & were said by an old negro woman to be good to eat raw. They are not fully grown. The smaller one was said to be yellow when ripe. Went out of São João (1/2 mile) & passed a fine looking orange grove of 1 or 2 acres.

Planted a lot of Cocos palms. Some small fields of corn. Only cultivated the land in the river valley. 10 a.m. Passed a few fields planted with both corn & rice. The corn not very close together.

11 a.m. Took almost at Nazareth 2000 each. Had feijoad, rice, macaroni, fried potatoes, salt meat, scrambled eggs, egg salad, bread & butter, jam, coffee.

Rio to Lavras.

I have not seen an
skull house on a hill
in several corn fields
Hills getting lower &
more rolling. Very
little cultivation.

1.00 pm Arrived Nova
Chap. to Camal, de
Ribeirão Vermelho.

Have seen quite a few
legumes on the way. Here
Caulis is 76 cm. in
girth. About 30 in.

Arrived Botelho, at 2.45
pm. Road for Formiga starts
here. Considerable coffee in
the last few miles, and
a great deal of maize.

The vegetation has
changed very decidedly
since leaving S. João.
It looks still more tem-
perate. One would hardly
guess it was tropical.

Lavras,
at Presbyterian college
"Fazenda Modelo"

Own about 500 acres. Cultiva-
tion about 100 with 7 or 8 men

Amil

Perennial legume with
weak pods, 5 ft high

Salvadora do Campo

Small round yellow
fruit found in field on
way to coffee plantation.

Altitude 864 m.

Grasses at Uberaba 481

Trachypogon polymorphus

"Capim redondo"

Aristida longifolia
"gibbosa"

Andropogon Riedellii

Toward Goyaz

Panicum echinolaen
"Capim lançeta"

Heteropogon villosus
"Capim branco"

Tristachya chrysanthrifolia
"Capim frechinha"

Gymnopogon brevis
also called Capim lanceta

Paspalum barbatum var.
seffutun
"Capim cabeludo"

Panicum melinis
Capim gordinha

Andropogon rufus
Capim jaraguá
 sometimes called
Capim precioso

Broad leaf grass
Taquary do Brejo
 not good

Capim meloso
 (meloso grass)

Binga or Esquevia
 Flint & Steel lighter

Publications desired
Boletim do Ministerio
de Agricultura, Industria
& Comercio
Rio de Janeiro

Estudos do Solo
Thaophilo Ribeiro
 1913

Consultor agriola
Alvaro da Silveira
 1913

Revista de Veterinaria
e Zootecnia

Ministerio de Agricultura
Rio de Janeiro

Flora e Serras Minas
Alvaro da Silveira
 1908
Bello Horizonte

Atlas Portatif
de Justus Perthes
Journal du Commerce
Rio de Janeiro 5700

Biscoitos de Polvilho
the biscuits made of
maize flour

Lavras Jan 12. 1914

Rec'd the following tele-
gram from Dr. Lisboa, of
the Inspectoria das Obras
Cypripedium Lissas, Bahia,
thru Mr. Humbert:

"Peco avisar Popencos
que encontrei para Jua-
zeiro hotel Lopes Costa
para director horto."
Manoel Lisboa.

Lavras Jan 13. 1914. Tues. 485
Jaboticaba



var. Murta

var. Coroa

Outlines of the leaves of
the two Jaboticabas grown
here.

At the time of our visit
nearly all the trees had
ripened a crop and were
just getting ready to
bloom again. I had not
observed considerable variation in
the fruiting season of

different trees, however,
I saw a few w. no trees &
green fruits almost full
grown, laid on one ripe
fruits. Several trees had
a few flowers on.

Jelly

We sampled at Mr.
Hummel's and Mr. Knight
the jelly made out of the
palotoca. It is of good
quality, but has no un-
usual character or flavor
to distinguish it from other
jellies, as has the guava.
It can be called a very
good jelly, however.

Hummel says the British
can never cook the palotoca
caba or eat it in any other
way than out of hand.

Lavras, Jan. 13 1914

Limão do Matto
(*Platanus insignis*?)

Outline of
leaf.

Color

bright
green.

thick,
stiff
slightly
glow
above

Veins
scarcely
visible above,
prominent
beneath.

Lavras Jan 13, 1914.

long
seed.gamboje
small
from seed

Lavras Jan 13 1914

Limão do Matto

Under this name there are 6 or 8 trees in the grounds of this College here, but appear to be a glutinous species, possibly *Alphitonia insignis*.

The fruit is usually elliptical, tapering at both ends, and bright orange yellow in color. Stem about 1 inch long. Skin $\frac{1}{2}$ inch thick or sometimes more. Terribly astringent and disagreeable in taste, rather bitter. The pulp which surrounds the seeds is snowy white, resembling mangosteen pulp, and is also slightly terebinthaceous unless fully ripe. It reminds me of the largest. The pulp is sweet & melting. Subacid and springy in flavor. The seeds vary from 1 to 3, 2 being common, and usually one.

is more or less endocarp
They are oblong, about 2
inches in length, & when
a yellow, ~~the~~ gamberg
spices.

Mr. Humeuth says the
boys at the college eat
the fruits but the
Americans do not care
for them.

The trees about 20-25
ft high, with fairly dense
and growing up must be
able to with stand a little
frost.

Lavras, Jan 13 - 1914 491

Climate

Mr. Humeuth says the
lowest temperature he
has recorded ~~the~~ the last
year is 33°F. He thinks
the winter temperatures
have sometimes been
lower than that in
previous years as he has
seen ice formed.

Mr. Knight says the
rainfall is about 1 meter
per year. There is a great
deal of cloudy weather,
& practically no extremely
hot weather.

Monjolos

Corn or rice shearer
operated by water.

Peaches

Quite a few of these growing around Lomas. In high altitudes on way here. The fruit is about 2 ins in length, considerably bigger than the ones we saw in Rio in October, but nearly all are wormy. Color yellow with pink tinge. Flesh rather hard, flavor fair. Compared to U.S. fruit it is a very poor variety.

Gabrielia

Pseudium cinereum. A small shrub, 2-3 ft high, very common in the campos around Lomas. At this time fruits are practically all gone by, but we found 4 or 5 ripe ones. Humboldt says the flavor is good. Berries about the size of gooseberries, pale orange yellow in color.

Bamboo

Tacuara - the wild rattan-like bamboo is common around Lomas.

The cultivated bamboos (introduced) are put to a great many uses. One of the most important is as ceilings in houses for which the bamboo is split and woven together very closely.

Canes make in two ways. 1st, split bamboo woven over three horizontal cross poles. 2nd, striking the whole cane upright in the ground. The bamboo is one of the most widely used plants here.

Pratisha Jan 15. 1914

Lebu cattle

Guzerat } breeds
Nellore } known here
Issar }
Gire }

Man at store where we stop
at Pratisha says that
Guzerat is the best race
for milk.

Nellore is good for milk.

Issar gives less than
Guzerat is fair

Guzerat is preferred
for this reason above
all others.

Nellore is heaviest
& has smallest bones.

Guzerat is preferred
at Pratisha.

Nellore usually spotted
other races self colored.
Usable

Pig.

Sunday de Sta. Lucia
Pedro de Paulo Lemos

Cow

Palinha } sire Issar pure
dam Gire
with 10 cotton, but refused
to work. Wont sell her for
2000. Gives about 2 gallons
some times 4 1/2 yrs. old.

Pardo nearly pure
Guzerat. Dam was not
quite pure colored.

Mr Knight thinks present high
valuation of Lebu is
inflated. Sort of a pad here.

Palinha valuable because
pure Lebu, will produce
good offspring. Good milk.
Says Lebu bred here
imported from India

Local bred Zebu better than any that they can import. Grow larger here. Paid 2 crates for mother of Zebu, when she was very old. Zebu was her last calf.

Only 4 Zebu races here. No registration of pedigree here. I would be very desirable to form an association for that purpose.

There is over 20,000 acres. The father's farm was 163,000 acres. 32 miles long by 8 wide.

Head of Cows are mostly 3/4 Zebu & the calves mostly 1/4 Zebu.

Nellore breed not good here.

Oratunha, Jan 15 1914
Lagunda Sta. Lucia
Cassimunda de Paulo Lemos
600 liters of milk per day. Sells the cream at 100 reis for the amt from 1 liter of milk. Preparing 30 a 35 cents a liter for the cream. Takes about 30 liters of milk for 1 kilo butter. Has all the cream milk to feed his boys. Butter 24000 to 30000 per kilo, wholesale, in Rio. I might about 300 reis a kilo by per kilo. The cow is 2 1/2 liters per day, taking it by 3 round.

Apim Gudeira
In some places, if rain come night and sun seeds to put cattle in it. 4 mos. Better to leave it until it has seeded once, or until seed is about ripe, before turning cattle in. Saw broad-

495 Pratinha Jan. 16 1914

Lagoda of Cassiano de Paulo Lemos

Jaboticaba

Has fine grove of over 100 trees
about 15 ft high. All of large
leaved variety. Has place
for 2 stores about as big as
ones back in the craters.
Each tree to induce branch-
ing. No fruit now.

Lime

Two fine looking lime
trees, loaded with large,
clean fruit.

Orange

I picked one fruit
that seemed about ripe.
The color is very well.
Some being deep orange like
they are in Calif. The fruit
was about 2 1/2 ins in diam.
thick skinned, with tough
rag & many seeds, but
became juicy and of good

499
acid, probably because
not fully ripe.

Abacati

Several plants in the
halls. Fruit on one; rather
small & thick, but of good
size.

Cane

Quite a patch of cane,
used in the house for
cracking syrup, cachaça de
cana, etc.

Mandacaria

Small patch in horta.
Used for farinha.

Citron

One tree, carrying a
number of fruit. Used
for juice & cedra.

Guava

One large plant of common
white guava in fruit.

Butter at factory at Pratinka
lakes. 22 liters milk to
make 1 kilo butter. Make
100 kilos per day, i.e. 220
liters milk per diem.



Zebu

Always stay in
a bunch like sheep.
Small boy can drive
up a whole herd, with
with same number
of cattle takes several
men

Formiga, Sun. Jan 18.

Arrived here from
Pratunhe at 8 a.m. Put
up at Hotel Goyaz.

Mango

One of the commonest trees in
the gardens. Does not grow as
large as on the coast. Trees
bearing fair crops of fruit, just
beginning to ripen. Saw various
Common forms of fruit, none of which
looked particularly promising

Jaboticaba

Very common & conspicuous. Trees
of larger size than any I
have seen in Lavras, usually
branch a few feet from the
ground, and are symmetrical
to slendly. Both coroa &
mufa are common, mufa
perhaps most abundant.
Saw a few green fruits on
some of both trees & m.
Dorville saw a few ripe
ones on one.

Orange

Very abundant in the gardens. Trees now full of fruit appearing about $\frac{2}{3}$ grown. No ripe fruit. I presume there are seedlings. Fruits not large, round, look like ones seen at Cassia's Lemon, Prater's. Trees have a fine healthy appearance.

Lemon

See quite a number of these in the gardens. I think they are mostly sweet lemons. A few look as if they were ripe. Fruit of good size. Trees seem to thrive here.

Bananas

Probably the commonest fruit plant here. I have seen ripe fruit on sale anywhere. However, firm clusters seen on plants I think the common variety is *maçã*. Plants are very high, about 10 ft.

Guavas

Abundant & grow to larger size than I have seen elsewhere in here. Plants loaded with green fruit now & a few ripe ones yellow, size of hens egg, apparently the common type of guava. Immense number of young bushes in the fields around the edges of the town.

Apple

Good many plants in the gardens, loaded with green berries. No commercial plantations as far as I have seen, but quite a few bushes in some gardens.

Araticum

Saw tree in one garden with ripe fruit, seemingly the same as one seen at São João del-Rei & Lavras. Fruit has a thin orange-bright color.

Eucalyptus

Avenue of some sp. in upper part of town. Trees young, 15-20 ft high, looking very vigorous & in fine condition. In bloom much.

Champac

Few trees along street. Seem to be in pretty good condition. Notes common as in Larrea. Trees small 8-10 ft high.

Grevillea

Two trees along street. Young about 10-15 ft high. Look well. This tree is probably well adapted to this region.

Mamão

Not very abundant, but have seen quite a few. Plants nearly all branched. Fruit looked rather small & although the stock was very choice. Have seen fruit ripe or on sale.

Dates

There are two fine date palms in a back yard near center of town. They are about 35 ft high & stand up very prominently. Both are loaded with fruit clusters, about 15 on each, the fruit on the lower ones being red, on the upper yellow. I have seen no male palm around but could not get into the garden & did not look elsewhere closely. First date I have seen in the interior here. Old leaves left hanging in the palms.

Maximelo

Quite common. Fruit of fine size and seems to be getting ripe as it is turning yellow in color. I don't think the bushes bear as heavily as in the States.

Logan

Have seen a few trees in town, about 15 to 20 ft high & appearing to be in good condition. The flowers are dropping. Trees do not look as sickly as they do in the coast.

Peaches

Only saw a few trees. On one or two the fruit appeared to be just getting up. Apparently the same type as at Laredo elsewhere.

Pitanga

Quite a few flowers in the gardens, up to 18 ft high, only saw one fruit & that green.

Jambo

A few trees in the gardens, about 30 ft high. I saw no fruit.

Cane

Small patches in quite a few back yards & gardens. Tall, but stalks did not look very thick.

Mango

Patches in quite a lot of small gardens. Saw ears in the bush being sold on the street by Luperón.

Laranja da Terra

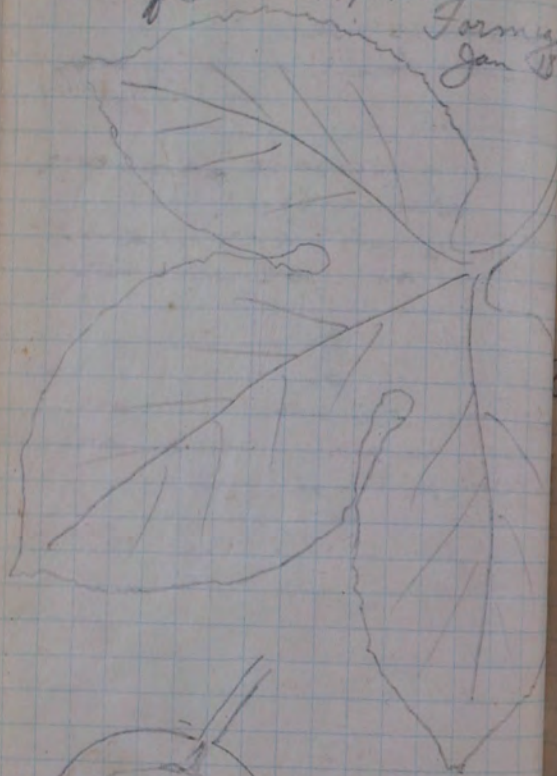
Trees appearing to be this are fairly common. A few ripe fruits seen. Do not seem to grow as large here as at Bahia. Trees vigorous & look better than at Bahia.

Abacate

Only saw one tree, about 30-35 ft high, loaded with green pyramidal, necked fruits 4-5 cm. long.

Passiflora sp.

Formosa
Jan 18



long sec.
of fruit

Formosa Jan 18 1914

Passiflora sp.

Fruit found in a garden
not far from river. Not
ripe at this time. Plant
as a climber and produce
very abundantly.

Thinnest says Mara-
nga is good for sorbetes.

People were dressed

Roberto do Prado

Alto magueo. Canto do Prado
cross with eye shot

Lavras, Jan 19, 1914 Mon

Arrived here on return
trip from Pratinha at
11.20 A.M.

Mango

This is a great fruit
in Lavras & its vicinity
in season. The trees
here do not grow large,
compared to those on the
coast, but many, which
have been bearing very
large crops. They seem to
produce very abundantly
in this climate. There are
practically no bud-ded
trees here. Bennett says
a few have been imported
from São Paulo in recent
years. The seedlings are
of ordinary type so far as I
have observed. The shape
and size of the fruit
call one type. Sagittate
little like in account
of its supposed round
shape in fruit & a small

er the best type
but those I have eaten
are of very ordinary
quality. The flavor is
good for a seedling mango
but the fiber is very
objectionable. The fruit
is about 6-8 ozs in wt.
I almost say, 40-5 lbs long,
above, compressed laterally,
usually slightly beaked,
aromatic or greenish yellow in
color of fruit. The skin appears
dark bright orange
yellow, spiny, aromatic.
This is the principal type
distinguished by name here.

Lavras, Jan 20, 1914

Garden of Sr. Moreira,
Prop. of Hotel Moreira.Mango 1st Photographed

The tree is young, the trunk about 6 ins. in dia. + 6 ft. to place where the branches are spreading & born, due to heavy load of fruit so it has to be supported up on all sides. The fruit is produced in clusters all around the outside of the trunk. Sometimes 8 fruits in a cluster. Rather small in size.

Mango Espada

grafted tree. Fruits large, lighter than those bought in Rio de Janeiro market, but only a few on the tree. Tree young, only 10-12 ft high, but spreading in form.

Mango Yoyanna

This seems to be a type more or less well known in Lavras. Fruits not so succulent as good as Sapotilla. A good bearer, fruit produced in clusters of kinds of Brachee. 8 fruits in largest clusters.

Jaboticaba

15 old, large trees in the garden, about 25-30 ft high, branching very freely and close to the ground. A few flowers on several of the trees, & have a dozen green fruits. Trees surrounded by logs & all sorts of junk, that growing under favorable conditions. Apparently they get no culture whatever. Foliage only on tops of trees. Branches all bare, with marks showing fruit has been produced.

Peaches

Several small
trees. In Morogoro
they bear much better
when pruned, but must
always be attacked by
bees when ripe.

Mulberry

Two trees in the
garden.

Guava

Several plants of
what appears to be
the common guava, loaded
with fruit. Plants
small.

Abacapi

A small patch here.
The fruit are not as large
as on the coast, being about
6 or 8 in at best, and do
not taper towards apex,
being broadly oblong oval.
They do not seem to color

fruit is yellowish green
tinted a tinge of deep yellow
around the base; greenish
yellow when ripe. The flavor
of this one we tried
is very good, better than
those we ate in Rio, but
not caused by the Bahia
process. Found quite
a number of perfect seeds
towards the apical end
of the fruit. Flesh yellowish
white.

Ananaz

Found in easily disting-
uished from the Abacapi
by the color, which is bright
red even when the fruit
is young. In shape it is
more elongated than the
Abacapi and the size is
fully as large. The flavor
is good, but flesh woody,
deep yellow in color. Very
green. One cannot swallow
the pulp.

Mamão

Large plant with 6
branches 2-3 ft from
ground, & these develop
into numerous
branches further up. All
branches heavily laden
with fruit. Moreira
thinks there are 300
fruits on the tree. Fruits
about 6 ins. in length.

Bananas

Has following varieties:

Macã

Prata

Puro

Marenhão

and several others.

Apriçot

Several young trees
seen to be in good condition.

Roma

Small plant, about 6 ft high.
Fruit larger size than
an orange in Bahia.
Only a few on bush.

Morango

Several plants. Fruiting
well & fruits of fair size.

Mamã Amaraca

One tree which Moreira
calls by this name. The
fruit are not quite the
same shape as the
Amaraca of Rio but
very similar. Tree only
bearing 2 or 3 dozen fruits.

Lavras, Jan 20 1914. Tue
To Fazenda of Sr. Madeira

Eucupira do Campo
Shrub flowered tree
with flowers somewhat similar
to ipei. Wood very good.
Tree small.

Cabacanga do Campo
Tree for dyes. Occas-
ionally cultivated in gar-
dens, when it grows large
and better. Sometimes
called Pera do Campo.
Abundant on Moris Redonda.

Grasses

Madeira says stock
will leave Jaraguá for
goodness very thin.
Plant jaraguá seed
in Sept. Not plants
flower. Scatter seed
before putting in stock.
Usually about follow-
ing June.

Lavras Jan 20 1914

Fazenda Modelo

Carnaúba ferro

Tree between Amor &
Pera. Now 3-4 ft high.
Old stock 2 yrs old.

Amerdaim do Mato
Crataegia 3
small shrub 6-7 ft.

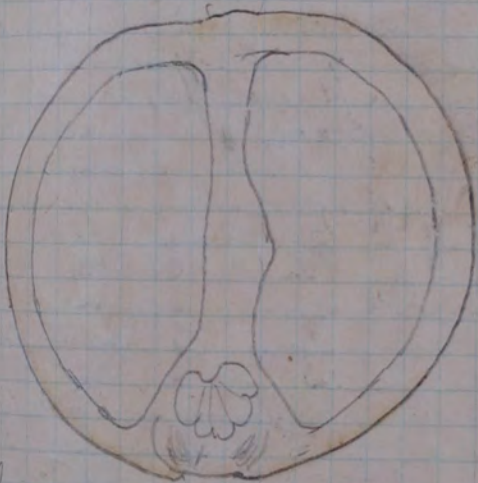
Leaf of Ananas

reddish green slightly mottled

Leaf of Abacaxis

bright green

523
 Lauras Jan. 21, 1914. Wed.
 to Morro Redondo
Bahia orange.
 grown near Morro
 Redondo, $2\frac{1}{2}$ leagues from town.
 Trees were loaded with fruit
 and looked in excellent
 condition.



long, sec. natural size,
 of immature fruit, showing
 prominent internal navel.
 At the fazenda visited
 there was an orange
 grove of about 1000 trees

according to statement of owner. The tree had as healthy an appearance as any I have seen, - much better than the Bahia grove, on an average. Several varieties were included in the planting, in fact the owner said he had all the varieties known. The fruit was ripe, the most being about like the Bahia orange on preceding page, i.e. 1/2 grown.

Very little culture appeared to be given the trees. Laranja da Terra is used as stock, & quite a number of the trees were growing in the orchard. Laranja da Terra seems to be quite common in this region.

Lavras, Jan 22, 1914. Thurs. ⁵⁻²⁵

Marmelo

Fruit from Sr. Moreira's garden.



long sec. natural size
To show size & structure
of the quince of this
region. Above is a good
orange specimen.

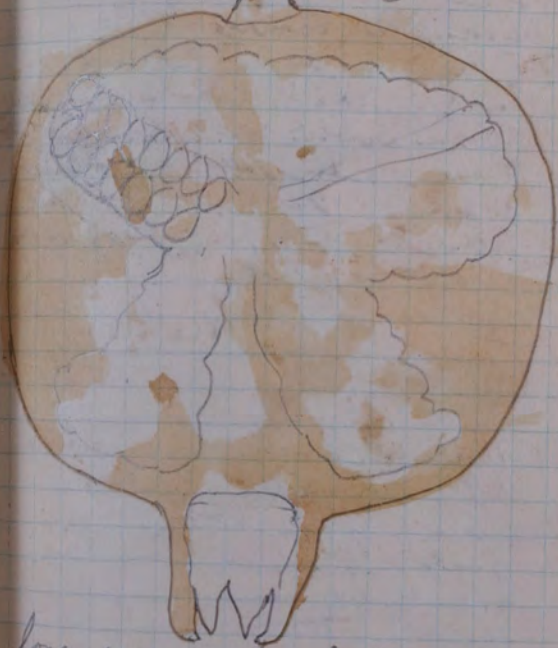
The Marmelo or Guine
is common here in the
highlands, & the fruit is
used principally for
making marmelada or guine
cheese, a very fragrant
sweet. The plants appear
to be quite at home, but
do not produce very large
crops of fruit, so far as
I have seen, as the guine
in the states.

Hoptons, Cacer & Hoptons
20, rua Moreira
Cacer
São João d'El Rey.

João de Barro
Furnarius rufus

Lavras, Jan. 22, 1914. 527

Roma from Sr. Moreira's
garden



long sec. natural size.
and rose red. flavo flat
but specimen not fully
ripe. The best specimenate
for size that I have seen
in Brazil.

528

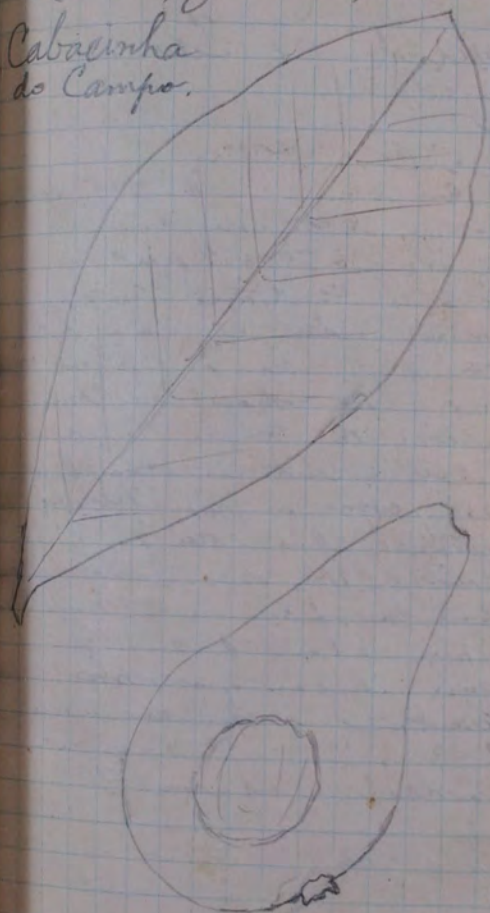
Lavras, Jan 22, 1914
 Malayba palm
 bunch 22 kilos in
 weight.

Amora Berry

grows in a natural
 open state in grounds
 of Instituto Evangelico.
 Ammendt thinks it is
 native, but as we have
 seen it only on these
 place we doubt this.
 Seems to be a Rubus
 looks like roseapple
 just coming into flower.
 setting young fruits the
 name Amora is given
 the mulberry, & may be
 been applied to this
 fruit because of the
 similarity in the appearance
 of the two fruits. See
 herbarium specimen.

529

Lavras, Jan 23, 1914
 Cabacinha
 do Campo.



Lavras, Jan 22, 1914

Cabacinha do Campo

or Pera do Campo, both
names given by Custodio Ma-
drigal.

This fruit is very rare here
we found it only in two
places in the field on the
road to Custodio Madrigal
& near Nova Redonda. The
season is said to be Nov.
Nov., which may be one
reason why there is so
little fruit at this time.
We found a number of
plants, but only 7 or 8 ripe
fruits. On one plant there
were a few green ones.

The plant grows 3-6 ft.
high under favorable
conditions, not more than
2-3 ft in campo where
Custodio. Leaves 3-5 in.
long, rather hard & brittle,
light green mottled with
good deal of russet.

The plant is very common
in the campo where
Custodio.

from the ground over
a space of several feet.
Stems slender.

Fruit pear shaped &
very similar to a russet
pear in appearance. Length
 $1\frac{1}{2}$ - 3 inches $1\frac{1}{2}$ - $1\frac{3}{4}$ in
in diam. at widest point.
Skin thin, covered with a
soft downy tomentum velvety
to the touch. Apex crowned
by small dry calyx, sometimes
to one side of fruit. Flesh
translucent, white, very
juicy and exceedingly arom-
atic, flavor acid but
aromatic and spicy, if sweet-
ened would be very good.
Seeds on to 3 or 4. Commonly
one more or less round,
about one half inch in
diameter, separating readily
from the flesh, light brown
in color.

Season said to be Nov.
Probably Dec as well,
nearly all gone by now.

Lauras, Jan 24 1914

Saborosa do Campo

The plant seems to be fairly common on the campo. Highest plant I have seen about 10 ft. Leaves oblong-oval, rough, 2-3 ins long.

Fruits about 1 inch in diameter, rounded, slightly irregular protuberances on surface, stem about 1 inch long. Color bright orange. Flesh stringy and fibrous. A mass separates easily from seed, soft & gummy, sweet and rather aromatic in flavor, lacking character. Seed about $\frac{1}{2}$ inch in diameter, usually oblate.

Season January. Most of the fruits seen ripe now.

Lauras, Jan 24 - 14533

Campo Fruits

The plants on the campo are as a rule not in fruit now. The Galinoba has just gone by. we found half a dozen fruits of it, but the crop is laid by upon in November. The Aratucums are in bloom and with fruits 1-2 ins in diameter. The guavas have green fruits $\frac{1}{3}$ or $\frac{1}{2}$ grown. Very few things are ripe, the Saborosa do Campo is one.

Jaboticaba

Had about 1 fruit of J. from one of Hunn. cuts trees. They were the best I have eaten. Musta or munda (small variety). The size was not large.

Jaboticaba cont'd

but was very fine.
 the largest were about
 1 inch in diameter, the
 smallest about $\frac{1}{2}$ inch.
 the color was a deep
 purple maroon. The skin
 was tough and hard to
 break, although not very
 thick. It was very juicy
 and the sweetest I have
 tasted no disagreeable
 acidity at all. I found
 somewhat astringent and very
 agreeable.

Hannemann says they
 bear 2 or 3 times a
 year. Says the natives
 say when planted in
 rich land & care for the
 flowers and fruit continue
 monthly. I however only
 had one day. I took
 rapidly & read material
 very quickly.

São João d'El Rey, Mon Jan 26 ¹⁹³⁵ 1934

Arrived here Sat. evening the 24th.
 Stopping at Hotel Oeste de Minas

Oranges

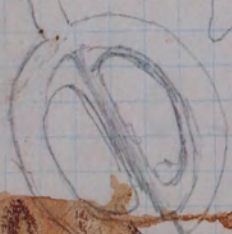
I have seen no ripe
 oranges since our arrival.
 Trees are abundant in the
 gardens and are loaded
 with green fruits about
 $\frac{1}{2}$ in. in diameter.

Bananas

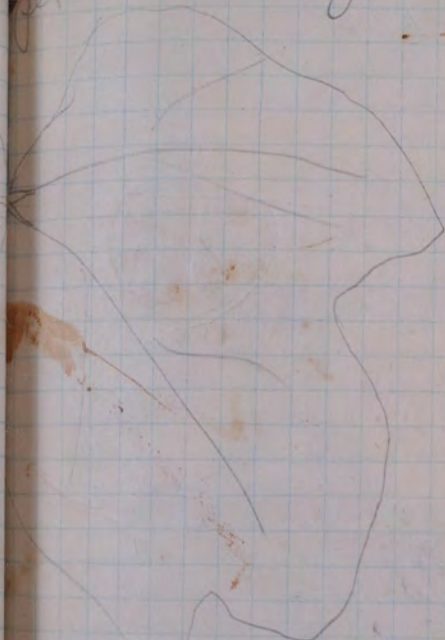
One of the commonest
 plants in the gardens. We
 bought 6 bunches of Prata
 variety for 200 reis. The
 fruit is rather short, about
 6 in. in length and plump.
 The flesh was rich and
 very good, much better
 than any bananas I ate
 at Lavras.

Tree 15 ft.
fairly common
around town
Sometimes
used as
a hedge
plant

petiole
3-4 in
long



petiole 4-6 in long.



Mamona (?)

São João d'El Rei
gan

is a drastic purgative

São João d'El Rey, Jan. 26



long. sec. of fruit
natural size
fruits edible
orange yellow
in color with
thick whitish bl.

leaf, natural size

Araticum

Small pointed variety, fruit
common in gardens and
cultivated places. Tree 15-20
ft high, though it is not often
allowed to reach this size.
On most of the trees the fruit is
nearly ripe, but green
on only some trees.

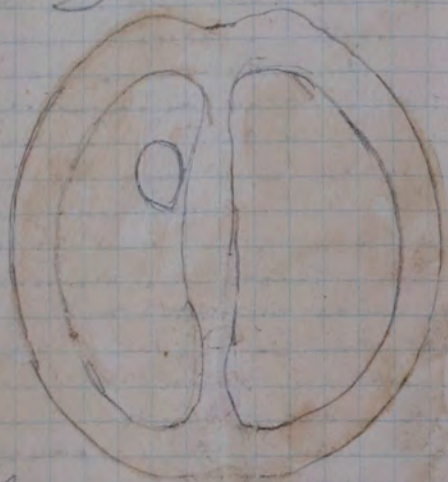
São João d'El Rey, Jan. 26, 1914
Amora Berry

berry, nat. size
color bright
rose red.

leaf, nat. size
leaves compound
leaflets 7
The plant is very common
along the road sides in the
upper end of the town, appear-
ing to have escaped from the
gardens. It grows in dense
patches, reaching a height of
3-4 ft. At present there
are many flowers, some green
fruit & a few ripe fruit. The
fruit has a taste resembling
a raspberry but with not quite
so much character. The seeds
are troublesome on the whole
it is a very fair fruit.

540 São João d'El Rey,
Jan 26 1914

Orange



Long. section of fruit picked
in garden all upper end
of stems. Typical of the
size of the oranges at
this season. Not fully
grown and very acid.
The seeds appear to
be rather numerous and
of large size.

São João d'El Rey, Jan 26. 1914
Araticum Shown on p. 538

The fruit seems to be pre-
pared by the natives to
the larger araticum grown
here. The interior is nearly
filled with seeds, however,
these being better worn left
in pulp. Sometimes 16 or 18
seeds in a fruit. Pulp is
translucent and very soft
and in flavor very similar
to Amara reticulata and
about the same quality.
The skin is thick and
tough, and almost smooth
externally, with very faint
lines marking the coriellary
areas and only occasional
irregularities to represent
the same protuberances.
Rarely red on end in
dampness and fairly constant
in form. Trees fairly prolific
bearing as far as I have
seen.

S. João d'El Rey, Jan 26.
Maço

~~Maço~~ does not appear to be quite as abundant here as at Lamos, though there are plenty of trees in the gardens. It does not seem to grow as heavily as at Lamos. But like the trees at this latter place they do not attain such dimensions of growth as on the coast. Very few many are on sale there & it is scarce that the crop is just beginning to ripen.

Most of the trees are seedlings of ordinary apple trees, but I noticed in one garden a few trees with superior fruits, one exactly appearing to be Rosa, because of its high coloring. I suppose these trees were grafted.

S. João d'El Rey, Jan 26-14

Canana do Brejo

By this name a well known is called, appearing to be a Philodendron very close to our Monstera deliciosa. It grows in low places along the water courses in the upper end of town. The leaves are about 1 ft in length, somewhat creased and divided somewhat like Monstera. The fruit also greatly resembles the latter in structure and is about the same size, except somewhat more plump - about 5 or 6 inches long & 2-2½ thick. The flesh is bright deep orange in color, in small bulge like grains of corn, separate readily from the receptacle. The flesh is sweet & not very pronounced in character, what I ate without the tongue & lips severely.

S. João d'El-Rey Jan 27, 1914

Bombay

One of the Ceibas / Bombas is the feature of the landscape just; there are perhaps a dozen large trees scattered over the plain, & they are just coming into bloom. The trees are large, about 40-45 ft high, somewhat wide spread & spreading top, the trunks covered with broad, lanceolate short spines. The trees when in full bloom are simply a mass of color, - beautiful deep pink, almost like some of the orchids in color. The flowers are 3-4 ins in diameter, & greatly resemble an orchid in form. They seem to last but a short time, but there are many buds on the trees. The name of the tree has been given as *frankia* or something like that.

S. João d'El-Rey, Tues. Jan 27, 1914

Laranja

Cross section of laranja, immature fruit, picked in a garden in São Paulo. Seediness of the oranges here. These fruit would probably have ripened in June & consequently is not yet full grown. The trees are rather small in size, but densely foliated. They give a healthy appearance, with good crops of fruit just coming.

Sitio, Jan. 28 1914. Wed.

Laranjas

Our porteiros say there are four kinds of orange here. Laranja da terra, Laranja da terra doce, sweet form said to be good. Laranja redondo, the round form of the common sweet orange. Laranja calabacunda an elongated form of sweet orange which he says is the best one here.

The orange season is June.

Guineas

Saw a good many plants prominent in the gardens and a few in under small plantations. The plants were loaded with fruit of good size, apparently about ripe.

Grapes

Several small vineyards, about two vines at each station. The grapes are small, green, and sweet.

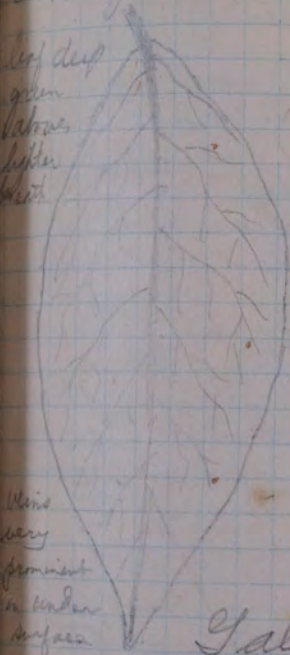
Sitio, Jan. 28, 1914. Wed.

leaf deep

green
lustrous
light
whiteVines
very
prominent
surfaces

One plant, about 10 ft high, upright and slender in growth, found near railroad track 1 km. from town.

Fruits orange yellow when ripe, form oblate, sometimes one-sided, when green and easily broken. Skin white, aromatic, acid, somewhat resinous. The



long, sec.
not size



cross sec.
not size

Gabiroba

548 Siteo, Jan 28 1914 Wed.

seeds are numerous but usually only 1 or 2 in a pod are perfect. They are larger than green seeds & compare

and Porter said the people here find of this fruit, & he himself ate all the ripe ones he could find. The plant is rather scarce in these fields, he says.

Apples

Numerous trees and small plantations. Trees full of fruit of rather small size and not very fine appearance.

Plemons

Saw a number of trees in the gardens, & one woman down at the station selling a few of good size but rather unattractive appearance.

Mangos

Boy says the mangos here are very small.

Siteo Jan 28, 1914 Wed. 549

Aratacum

Saw 3 kinds growing wild here. One is the small, nearly smooth variety growing at S. J. de El Rey. Other 2 are slightly larger, & I think at least one of the two we found at S. J. de El Rey. All three are just beginning to ripen. I only found 2 or 3 ripe fruits. Boy says they are ripe nearly all the time.

Cograt

Saw one very large tree here, largest I have seen in Brazil. Must have been 35 ft high.

Barbacena, Fri. Jan 29, 1911

Called on Messrs Wright and Brainard at the Escola Agrícola. Mr. Brainard is Chefe das Culturas.

School

This school is maintained by the Federal Govt. to train the students for the agricultural colleges in Barbacena & Campinas, Farm to give an elementary training in agriculture. Mr. Brainard says that only a small percentage of the students ever continue the education beyond here. Most of the boys I saw appeared to be about 10-15 yrs of age. They are called apprentices, and are not only given instruction in the school but paid about 400 to 600 reis per day for the work they do on the farm and in the shop.

The method is to teach the boys by actual experience and example rather than from books. The school is housed in several fine new buildings, containing class rooms, carpenter machine and blacksmith shops, canning factory machine for making tin cans, storerooms, & dining room.

The farm composes about 225 acres, about 80 of which are at present in cultivation. Practically all the cultures are the work of Mr. Brainard, who says there was practically nothing on the farm when he took charge a little over two years ago. The land lies on the hillside & in the bottom of an intervening valley. The hillside land is planted to fruit trees & the bottom land reserved for vegetable garden, alfalfa, etc.

Fruit

The principal fruits cultivated are introduced temperate fruits. Mr. Brainard says it is one of the purposes of the institution to demonstrate to the people what can be done with the temperate fruits in the highlands of Minas. A plan is being formulated to distribute plants of the best varieties of apples, plums, peaches, etc., on a wholesale scale, and a bank of stock is already being grown for this purpose. Mr. Brainard thinks the Director of the school might be glad to get a touch with us to learn something of how this distribution work is carried on in our country.

Soil

The soil in the bottom
land is supposed to be
excellent & fine black

loam, & excellent vegetables & nursery stock are being grown on it. The hillside land is somewhat more clayey, but looks better than most of the clay soils we have seen in Minas. The hillsides have been terraced in parts.

Apples

Mr. Brainard says that this region can only be considered fair for apples. On account of the climate, the fruit cannot be kept long, and is often attacked by brown rot while still on the tree. We do not consider the apple as promising as some of the other temperate fruits. The varieties grown are Pearmain, Russet, and a variety called "Vermelha" which does not please when Brainard arrived. So far Vermelha has done the best, but Mr. Brainard

wants to make extensive varietal trials of the best kinds from Calif. The apple trees did not appear to us to be particularly happy.

Peaches

Not a great deal has been done with peaches as yet. There is a young orchard about 2 yrs. old in fine shape but not yet bearing. Mr. Brainard says the greatest difficulty comes from the chicks attacking the fruit but he is sure this can be prevented by spraying. The peaches already grown in this region are so small & inferior as to be almost worthless, & nearly always are wormy. The trees succeed well, however, & there is no reason why better varieties should not be just as successful.

Plums

This is one of the most promising temperate fruits for this region. Quite a lot of trees are already in bearing, the majority being Kellogg. The variety grown to great size here, & the fruit produced is all marketed locally at 2¢ over to 3¢ per 12. They have to sack the fruits to protect them from birds. The plum trees seemed thrifty & in fine condition. Fruit now getting ripe.

Cherries

Only a few trees are in bearing, but the trees looked pretty well.

Nuts

Quite a few trees introduced from S. France are loaded with fruit of good size, just beginning to turn color. The fruit seems especially promising. The

trees are vigorous and healthy in appearance, and bearing most abundantly. High prices are obtained for the fruits. This culture could probably become extensive in this region.

Grapes

This is one of the most important cultures on the farm, if not the most important of all. In a new vineyard recently planted 65 varieties are being tried out. Of those already tried we sampled the following:

Isabella, one of the most satisfactory here as elsewhere in Brazil.

União Villagem, a variety of very large size, almost twice as big as Isabella & very rich in flavor. This seemed like a very choice variety to me. It is said to be of Brazilian origin.

Campo do Paiz, a small prolific variety with out a great deal of flavor, but the juice is deeply colored & the fruit is mixed with others in making wine to add color.

Golden Queen. Did not taste this as it was not quite ripe, but it is very similar in appearance to the muscat of California.

Siebel a small wine grape, very prolific bearer. Blue in color.

Alfalfa

A small patch was planted on the bottom land about Oct 15, and has already been cut twice. The only drawback to its culture is the difficulty in curing the hay, of the moist climate.

Tomatoes

Mr. Brannard has planted

native seed & by culture obtained much finer & larger fruits than the ones ordinarily seen around the country. The variety does not appear to be nearly as good, however as some of ours. Have made some money this yr out of catanps.

Jaboticaba

Mr. Brannard has made considerable jelly of the fruit. He says care must be used to avoid giving the jelly a taste of the tannin which is in the skin of the fruit. After eating the fruit instead of squeezing the fruit to extract the juice it should be allowed to drip. A few might be squeezed and added to the others, a very slight tinge of the tannin is not objectionable and

improves the jelly. He also has bottled the jaboticaba juice in the same way as grape juice.

Blackberries

The young plantation of several varieties also denberries, which look promising.

Nursery stock

Mr. Brannard's young stock both seedling stocks & buds, look fine and compare well with anything I have seen at home. It is culture that does it. The whole farm shows careful cultivation, & looks like a California layout.

Coupeas

Whippoorwill variety has been planted in large part of the fruit orchards.

to improve the soil. They
are making fine growth.

Cambuca'

There is a row of
young trees here Brainerd
says it is a fine fruit.
These in young stage
resemble Jaboticaba but
have somewhat larger

Pecan

Several seedling trees
8 yrs old of good size but
have not produced
any fruit as yet.

Barbaena, Jan 30 1914

Trepadeira

This is the name
given by one of the gar-
deners in the cemetery to
the small purple flow-
ered vine of which we
obtained seed. I find
the name means
"climber", so it probably
is not the proper name
of the plant.

This vine does not
grow more than 8 ft
high in any of the tombs
in the cemetery, but
forms a dense mat of
foliage, & is a very
profuse bloomer. The
leaves are small, not
more than an inch
in diameter, & resemble
those of English ivy
in form. The flowers
are tubular, 2-lipped
in front & of bright
blue-purple color,
about 1 inch in diameter.

562

563

Chacara of Dr.
Francisco Sales

George Davis
at Grande Hotel

Frank R. Brannard
715 Central Ave
Fresno Cal

William P. Wright
Aspers, Penn.

Kahus from 5 France
having + do well

Siebel. wine grape

Jaboticaba jelly buds
& taste of Fennel
wh is in skin. Must
not be squeezed but
allowed to dry.

Dry apr to Sept

Cut alfalfa 2 times in
3 mos. O had at 15 bot in

Pearman
Russet
Vernelha
Frambuise

Roll 6

- No. 1 View of building
2. Terrace just gone
below building
- 3 Canbaca to

~~4.~~

577 No 3. Aruncaria
brasiliensis avenue

No 4. Avocado tree

586. Cow peas in
slum grove
Whippoorwill on

7. ditto, another loc

8. Contarins with slum
orchard + buildings

Ditches for fences
near prominent
Mongols
of car noise

223

80m cut

Isakech
Gedengem
Unio Viscum
Compo to Ray

Willow at San Joaquin & El Ray
 Height about 30 ft. Straight
 and upright in growth.
 Has been cut back looking
 at 10 ft above ground. New
 sprouts come out to
 make top looking very fine.
 fairly thick but they
 does not make solid stalk.
 Appearance almost
 suggests a cypress

Jan 25.

Wrote Humeant to find
 mail rec'd prior to 29th to
 Boco Humeant, Grande Hotel
 + 29th to 4th of Feb to
 Pinapora.

Pan American Bulletin
 Journal of Agr. Univ. of Cal.

1. Utilization of Tropical Fruits
2. Little known Myrtaceous Fruits
3. ~~Martineira~~
4. Rio São Francisco
5. Mangos of Brazil
6. Frangipani
7. Bahian cookery
8. ~~Jaboticaba~~
9. Abacaxi
10. Navel Budsports in
Selecta orange

Livraria Francisco
Alves

1065 Rua da Bahia

Bella Horizonte

Atlas Portatil de
João Guilherme

Edição Brasileira

Monographias Agricolas

João Carlos Travassos

Rio de Janeiro

Ministerio

3 vols.

Cash

Jan. 8 1914 Rio de Janeiro
\$4.00 in checks

3074
<u>4.00</u>
1229.600
300 stamps
<u>1229.300</u>

11, 12, 13

Hass + Clemence

Rua da Bahia

Café
Bell's HangersInsects
Cupini
PeopleJalisco
Glen
So on

Nao seja for iss

Write for books
Atlas

Write Hunicutt

Bello Horizonte, Mon. Feb 2 1914

To Mercado foot of
Avenida Affonso Pena.

Mangas

Quantity of small seedling
fruit at 100 reis each. Do
not look very choice

Murmelos

abundant, & fruit of good
size.

Abacaxi

Fair sized

Chuchu

abundant and of large size,
free from spines

Pomã

Fair sized green fruits
200 reis each.

Turra

large size, green

584

Peaches
Small ordinary

Oranges
Only a few here. Look
like Peru. Not very bright
colored.

Citron
Two large green ones

Manga Espada Goyana
Rosa Coração
Sapatilha do Sol
200 per sack

Limes
Fairly good

Parapara to Joazeiro 136
120

Bello Horizonte. Tues Feb 3 1914 385

H. Philippot
Empresa das Lanchas.
Parapara

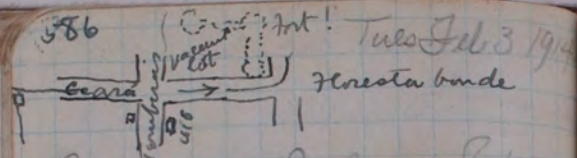
Mr. Millar
Engenheiro

Alvaro da Silveira
Secretaria de Agricultura

Uporia, found in the
Serra do Aço

a new myrtaceous genus
founded by Silveira. Size
the fruits are far superior
to Gelaticale. They are
about the same size as
a good Gelaticale. Should
try him for seed.

Population Bello Horizonte
45,000, ap Mr. Passal



Tues Feb 3 1914

Called on Dr. José Santiago
Cardwell-Gunn on Rua
Tymbrás 418.

See notes on trip down
Rio São Francisco. He has
made the trip.

Dr. L. Zehntner is in
charge of Horta at Joazeiro.
Fruit of Dr. Guimarães

Oranges

Bought 3 fruits in the market
Said to be and apparently
are, Pers. of good size, the
not quite as bright in
color as those we got
in Rio. Skin very thin,
seeds very few, pulp of
fine texture & very juicy,
with the characteristic
sweet taste of Pers but a
little more acid than
those I sampled in Rio.

Bello Horizonte, Tues, Feb. 3 1914 587

Street trees.

Champae (*Michelia Champaca*)

The man who showed me
that the park says there is not
a very satisfactory tree for
the reason that as soon as it
becomes of good size it blooms
and fruits so profusely as
to break down the branches.
They are not very well
satisfied with it here. The
ones lining Rua da Bahia
have been cut back almost
to stumps, - about 12-15 ft
above the ground, & are
coming out again with good
heads of foliage. There
are several streets planted
to this tree.

Terminalia catappa

Only saw one avenue
planted to this tree. It grows
rather high before branching
and while not especially market-
able in seeds to be a

very fair street tree. This
might be tried at Miami
+ advantage.

Grevillea robusta

This, here as elsewhere
is dirty and ragged in
appearance, unless it grows
here is totally unfit for
a street tree. It is
used in several streets,
usually along the curb
with other species in
inside rows.

Sapindus saponaria

Called here "Saboia"
Soldado - "soldier soap".
This impresses me as being
the second best street tree
here. Ficus takes first
place very easily. It grows
to a good size, is a good
tree, shrubby, furthest
from shade and is
fairly clean. The berries
do not dirty up the
street very much.

Dillenia indica

This tree is too stiff
and formal, & drops its
leaves too much. When
mature & well grown it
is a handsome thing, but
as seen in the streets
here it is sparsely folia-
ted and not very suitable
for street planting.

Malvaceae - yellow flower

Same tree as seen in
Bahia and elsewhere. Top
very broad & spreading, densely
foliated. Not very uniform in
growth, and drops its
flowers every day, making it
rather dirty. This is only
fair as a street tree.

Ficus benjamina

Early the best street
tree here. In some places
the trees have been pruned
up too high & are stiff
in form. Guess here
shade is clean & very

attractive in appearance.
Foliage glossy & deep
green. Same tree as
planted on Pura Maria
Rio de Janeiro.

Eugenia jambolana

Grows to a good height
& fairly shapely good
of good color. The fruit
falls on the pavement and
stain like mulberries.
Can only be considered
fairly good.

Palms

Oreodaphne cleracea

Here as elsewhere this
impresses me as the
finest of all palms for
avenues. Avenida Affonso
Penna has a double row
down the center, but they
are too young to show
up to best effect yet &
other trees outside them.
The same street goes
going to less.

effect, I think. The palms
are already beginning to
be crowded by the other
trees. To show but I think
an avenue should contain
nothing but the palms.

Carotia urens

Avenida do Amazonas
is lined with these plants,
& makes a very good
effect, except that the
plants are not quite
neat & healthy in appear-
ance, being somewhat
brown. Their effect is about
as tropical as anything I
have seen.

All the street trees here are
planted much too close, &
they put 4 to 6 rows on
a street where 2 rows
would be sufficient. In
addition the electric light
poles run right down
the middle of the street.
Too many obstructions to
effect.

Wed. Feb. 4 1914

Left Bello Horizonte at 8.45 a.m. bound for Lagoa Santa, Ar. General Carneiro 930 took off and left on Pragera train at 11 o'clock, after waiting for the upbound Rapida. After run of about 45 mi. on at Vespasiano, nearest station to Lagoa Santa. Here we arranged with a ox cart to carry our hand baggage over the lake for 20 hrs. There are always several carts making the trip every day. Horses can be obtained here if desired but we preferred to walk. Left Vespasiano about 1 p.m. and at the lake about 4.30. must be 8 mi. - 2 leagues, the the slope say 1 1/2. Road hilly, no water & little shade. On such days a guide or fellows in ox carts on the road branches in one or more places.

Lagoa Santa, Feb. 4 1914

Bananas	Casuarina
Oranges	Macaruba (?)
Mangoes	Bamboo
Genipap	Eucalyptus
Monaco	Coincettia
Mango	Cocos sp.
Calceolaria	Jasminum
Cambo	Sp. Hibiscus
Guaranindo	Bougainvillea
Whon	
Abacaxi	

Tobacco
mandioca
Coffee
Corn
Cane

Above plants and crops noted in the gardens here. Bananas probably most prominent crop. Good many oranges. Indeed also plantations. Good deal of mandioca.

Lagoa Santa, Thurs. Feb 5-1914

Road

The road here from Vespasiano runs up across the hill on the right side of the railroad track, as one goes up on the train. Cactuses all the way to Lagoa Santa it runs thru dry, hilly campo land, with red clay soil. The vegetation is twisted and stunted in appearance, but higher than on the campo at Lavras, the largest grunge being about 25-30 ft. high. The large *Araticum* shrub throughout was frequent. About 1 mile above the lake passed large limestone cliff $\frac{1}{2}$ mile to right side of road. Population of Vespasiano said to be about 800. Lagoa Santa over 1000. Altitude of Vespasiano 600 meters.

Lagoa Santa, Thurs. Feb 5-1914

Café do Matto

Berries said to be good for urinary troubles & leaves make a tea as good as mate. Berries are sweet and juicier than mouth, as well as exciting the salivary glands and causing profuse secretion of saliva.

Araticum

The large *Araticum* of which several photos were made is frequent all the way between Lagoa Santa & Vespasiano. The tree grows to 25-30 ft. & the outer bark about $\frac{1}{2}$ inch thick, is soft & corky. The leaves are glaucous. I saw to be practically full grown but we found none ripe nor any *Araticum* seeds in any we opened. Seems to be a good deal of flesh in proportion to

Lagoa Santa, Thine Feb 5 1944

The town is spread along the shore of the upper end of the lake, most of the houses being sufficiently high up on the hill to be out of danger of the lake rising around the edge of the lake there is much grass extending well out into the shallow water, and the shore line in many places is not well defined.

The town probably has a population of 1000 or 1500. One large church in the center of the village, with a padre, & two other small churches in the outskirts of the village.

The houses are as a rule very poor, most of them sadly in need of repairs. There is a makeshift hotel but at the time of our visit the dona Rosa in

Bella Vista, outside of the town, was the only place where we could stay.

Francisco de Freitas,

owner of one of the principal vendias, just was up in a new house, only partially finished, where we slept on the floor of the second story, not yet walled in.

The town has an extremely dilapidated and forsaken appearance & seems to be entirely dead to the world. Pigs & goats run everywhere in the streets, yards & houses. There is great fear of hogs. The vendias carry nothing to eat but bread & desecrats, ^{farinha} ^{man, game} ^{hardens}, butter in tins, eggs, & cheap sugar candy in round tins. Other stock consists in Kerosene, salt, cachaca, soap, tobacco, & the few articles of clothing required by the natives. Fr. Joaquim furnished us with Almoço consisting of fish, rice, beans, farinha, and coffee, & probably the

regular diet day in and day out, varied with chicken & eggs occasionally. There is lots of fruit in this town but none of it was ripe at the time of our visit. Every house has a plant at one of banana & usually an orange tree or two. Guava are also abundant. There are fan or other Abacax plants about 100 x 100 feet or extent near the lake shore. Usually a little corn & manduca in the gardens, - small corn fields in the valley above upper end of town.

Of carts make the trip to Vespasiano every day & bring in what few supplies the town requires.

The lake must be 2 miles in length, and is said to be deep in parts & to contain plenty of fish but we saw no

our stay. The location is a very pretty one, & the place would be made into a summer resort if it were in the States. The town is very picturesque in appearance, nestling among the bananas & with a number of *Macaranga* palms scattered along the shore of the lake. It seems to have been better days.

Coming back I left at 10.30 and arrived at Vespasiano about 2. Making a few short stops on the way to take photos. It must be 8 mi. at least, & is a very hot walk. Hotel in Vespasiano is comfortable despite its hole, with good food. At 100 p.m. day, the regular fair in the interior. There is the great industry at Vespasiano, lots of corn in valley of river.

Sete Lagoas, Fri. Feb. 6/94

Abacaxi

While the train stopped here we bought an Abacaxi that was quite distinct from any others we have eaten in Brazil. The form was the same as the ordinary article but the color, light yellow, and waxy green, were different. The flesh was tougher than the best abacaxis, and the flavor quite distinct, reminding me of the artificial pineapple flavor used by Soda Mountains. It could only be considered fairly good - not equal to the Bahia article. Several perfect seeds were found in the fruit. It may be a wild form brought into cultivation.

Pirapora, Feb 7 194. Sat.

Crumata

Surubim

Dorado

Piranka

} Fish of
Rio São
Francisco

Capim meloso or guedure
also called Roxo
Branco

Opissorio or Jaragua
When allowed to grow
high stems are very
tough.

Lanuch

Dr. Guimaraes says Col. Adeline
Basta Neves had a 22 ft.
gudine lanuch and she rents
at 30 \$ 000 per day.

Pirapora, Wed Feb 11, 1914

We arrived here last Friday night and put up at the Internacional, the largest & presumably best hotel in town, but the grub is so poor I think I would try a different hotel on coming again. Possibly the Grand Bonn which looks clean & only costs 5¢ per day while we are paying 7¢.

Pirapora is said to be a town of about 2000 souls.

It lies on both sides of the Rio São Francisco, extends along its banks for a mile or more from nearly the upper end of the rapids down to the calm water below them, where the ships land. The town is new. There are no large churches and only one makeshift one.

substantial or well built residences. The Câmara Municipal is a good building, the school occupying the rear end of it. The Escola de Aprendizes Mineiros, across the river from the RR, is a fine large building. There are said to be 80 boys there & Barker says \$150,000 has already been spent on the layout. There is a meteorological station in connection with the school.

The population is mainly negroes & negro-indians, blacks, a very lazy & degenerate looking bunch. They live in houses of the most primitive sort, and the women sit in the doorway making lace work all day, while the men play the accordion or guitar, and perhaps occasionally do

a little work in unloading boats etc. There is a hammock hanging in nearly every house. The diet of the poorer classes is said to be fish and abóbora almost exclusively.

The river must be 200 to 300 yards wide here. The rapids are about half a mile in length, with a drop of perhaps 20 feet, and show many outcroppings of rock. The current below them is very swift. In the rapids there are a few trees and small sand islands.

The banks of the river are varying heights, from 10 to 300 feet. Even 50 ft. below the rapids school. The water in the river showed a temperature of 80° F. the other day.

exceedingly troublesome, and swarm in the room at night. No protection from them here.

The country around Pirapora is campo, with some low flat, marshy spots where rice grows well. Col. Caetano Mascarenhas, one of the wealthiest men here, has 50 or 60 acres in rice. The campo land contains many *Broselia* trees and numerous small trees 20-30 ft. in height, such as the *Pigui*. There are said to be practically no wild fruits of any value. We found one *Acacia*, a tree about 20 ft. high. There are practically no gardens in the town. A few stunted jaboticaba trees here + there. Col. Caetano has just planted some *Bahia* oranges.

Rio São Francisco, Feb 11, 49

At 1.15 p.m. the launch "Paulo de Frontin" pulled out of Parapara with us on board + headed downstream. We had been scheduled to start at 1 em ponto and I think Phillipot would have sent us off on time, had not the engineer discovered just as we were pulling away from the bank that the fireman was up in the bush hunting. A man was sent up for him and he soon appeared leisurely walking down the bank.

The boat is carrying about a dozen 1st class passengers + 4 or 5 in the 2nd, who hang off on deck while we can use the little cabin, but it only has bunks for 2 it won't be of much service to us.

after leaving Parapara the current of the river became less strong and

were away from the influence of the falls, and the banks on both sides varied from 10 to 30 ft in height. The banks are wooded all along, and we have a little hut and a small area of cultivation every few hundred yards. The principal crops are corn, cane + bananas, as far as we can see. There are many trees of the *Ina mirum* along the banks. A few water birds are seen along the banks at the waterside by every hut is a dug out canoe, the only form of transportation employed. The huts themselves are built of poles chunked with mud + thatched with grass. About 3.30 we come to the confluence of the São Francisco and the Rio das Velhas. The latter is quite a stream and perceptibly enlarges the

say of the S. Francisco
on the right bank immediately below the confluence
is Guaricuby a small
place of 15 or 20 houses visible
from the water. Just
below here there is
quite an island in the
river, perhaps $\frac{1}{2}$ mile long.

At 3.45 we pass the
Steamer Prudente Morano
great hustle to get the flag
up + d/f as we go by,
as well as blow our whistles.
Steamer looks decent. Run
into a squall of rain last-
ing 15 or 30 minutes. Has
been cloudy + showery all
day. River must be 200 to
300 yards wide here. As far

as Guaricuby saw occas-
ional palm trees, few large
palm with long, stiff, pointed
leaves. Have seen two
flocks of green + yellow
parrots + large blue
bird called Jacu' or
some large white birds
looking like egrets.

little lower down the
houses and plantations
become scarcer, & we only
see one or two a mile.
The river becomes much
broader - 4 or 5 hundred yds
or more, with very
little current in east or
of stream but by driftwood
seen floating close to shore
it must be 1-2 miles an
hour close to the bank.
Banks rather uniform + 10-
20 ft high with small trees
hanging over them. Largest
growth appears 30 ft high.
Saw corn fields along top of
bank + a few cattle from
time to time.

6 a.m. Morning of Feb 12.

It has been very cool and
comfortably all night. I
slept in Phillips's hammock
strung up aft on deck, and
had to have my mantenan
around me to keep warm.
Mr Dorsett also had a
hammock but could not
sleep in it; he sat up

until 3 a.m. and for $\frac{1}{2}$ hour took the wheel while the pilot took a snooze. It is a wonder we are not at the bottom of the river this morning.

Banks a little lower in places than they were last night, but heavily wooded down to the waters edge.

We made a good bkfst on bread, butter & marshmallows with biscuits to finish up. Beats the Interpacional. I think the hammock a great thing to sleep in, when one has a good room one. The launch ran all night, contrary to expectations. We pass an occasional hut surrounded by a corn field.

Last night at 6.45 we called at Extrema, a dilapidated looking village of perhaps 5-8 hundred population, as far

as judge. The houses are small, and look old. There is no large church visible. Pilot went ashore and got a bottle of cachaca. Drinks all around. Pass one house on bank with small grove of old orange trees, a jambo. & one young genipap.

São Francisco 7.30 a.m. Just above here saw first Coconut palms, - 2 young ones now but on bank. Coco da Bahia called in here. Launch stopped here $\frac{1}{2}$ hr to discharge passengers & cargo. The 3 yppies left here, one of them taking some of our baggage, but the Captain saw her with in on shore & brought it back.

The town is said to be 1700 - 2000 population. Doesn't appear to be much movements. The most prominent feature of the place is the old and large church of São José, which stands on a prominent place near the

a few appearing to be almost pure Indian. Some of the women make lace. Others are engaged in preparing mandioca. Considerable mandioca + maize planted about town.

Every house seems to have 2 or 3 dogs.

Found the Jaca tree here for first time. Also the low spreading *Dracaena*. The first *Annona squamosa* I have seen on the river were here & the trees were loaded with handsome fruit. A few orange trees with green fruit, *Terminalia*, 3 large ones in front of Loja (Paraiso).

Januaria, Feb. 12, 1914
Arrived here about 3.30 p.m. and were met at landing stage by representative of Hotel B de Novembro. Had our baggage brought to hotel and settled in a decent room looking out on a side street. Hotel is way ahead of anything we had expected.

Meteorological Station here Pinha

This is the name by which *Annona squamosa* is known here. This fruit is one of the most important here and never before have I seen the plant bear so profusely. On some of them the limbs are bent over by the weight of the fruits, and the fruits themselves are unusually uniform in size and shape. Must be the dry climate that does it. Every garden has one or more trees & fine large fruits sell at 20-40 reis each. Ripe grows so soon that only month or so. very soft.

Caju

Have seen several good looking trees here but there is no fruit ripe now.

Tamarindo

There are a few large + old specimens, some of which are broken and not as high as some I have seen in Bahia. Have seen no fruit on them.

Capim d'Angola Bengu

Several fields of this around town, largest we saw being 4 1/2 acres in extent. The highest stalks were about 7 ft. The grass blooms + seeds frequently here, + seed is beginning to ripen. Small birds are eating it before fully ripe. The grass is used for both horses + cattle. Also seems to be called Capim Colonia and Bengu.

Grass we first photographed called "Bengu" by owner of pasture. He says it is a different thing from Angola. There are two other kinds of grass - Colonia and Vermelha.

Imburana de Cheiro

To make tea take 3 seeds per a cup of water. The tea is a remedy for colds. The ground seed is mixed with finely ground tobacco and taken as snuff.

Pimenta de Macaco

Mixed with food for seasoning. Also taken as medicine for intestinal troubles.

Capim Colonia

In rows $3\frac{1}{2}$ - 4 ft apart
3 ft apart in rows. On red
sandy loam soil, recently
worked. Quite different from
Banga. Man says some
prefer one + some the other.

Francisco Augusto de
Paulo Cordeiro

Man who Jannana
man who buyed Perbas

Miguel Demetrio
Evangelista
Orange photos

Manoel Gomes Cavalcanti
São Romão
Minas
young man who came lived at Jannana

Laranja da China

Sold in market at 2 for
a winter, fine specimen,
and sometimes 3 for a winter.
We have seen both coarse skinned
+ fine skinned fruits, the
coarse skinned are said to be
fruits wh have hung on the
tree since last yr. The smooth
skinned ones are very thin
skinned, juicy, & of very fair
flavor, with only a few seeds.
Tree very thorny, and bears
prodigiously here. The climate
seems to suit it. The thin
skinned fruits are yellow green,
some of the thick skinned almost yellow.

Mamão

Good many trees of this
scattered over town, but I
have seen no fruit on sale.
appears to be a fairly
good variety, equal to the
common type in Bahia. The
plants seem to be healthy
here and all I have seen
are bearing well.

Roma

Have only seen a few shrubs in the gardens does not look very thrifty and the fruits are badly attacked by fungus, the fruits are rather small in size, and dull in color. Have seen none on sale. Probably not yet ripe.

Imbu

Have not seen a great many trees, but it is fairly common & bears heavily. It is peculiar in growth very low & broad topped, but leaving space underneath to stand up. Seems to be fruit in nearly all stages of development. Some very small and some ripe. See a good many seeds & skins scattered about the streets. See photo of fruits. Is probably a doce fruit. Some firms mixed with guava. Trincheira - also used for ambarella & much eaten fresh.

Coconut

Coco da Praia here. Quite a few tall palms in bridge near river. The leaves are badly eaten by some insect (presumably) and the nuts do not seem to be of very large size. They are sold for 300 reis each.

Mandioca

One of the staple crops. Lots of plants in small yards and numerous small plantations. Plant grows 7 or 8 ft high and looks very healthy.

Milho

Quite a few small patches around the edge of town but no very large fields. Does not look quite so thrifty as it did further south, and seems to be getting somewhat dry now.

Canna

Have only seen one or two small patches in the most of the cane must be grown outside of town.

Jaca

Have seen a few trees I took to be Jaca but no fruit. Everyone says they have Jaca here. Trees are not nearly as large as in Bahia.

Poinciana

This is one of the handsomest ornamentals here. One or two fine specimens in praça at center of town, shapely & well foliated. Saw a few others about the same

Genipap

Have seen only small trees of this, & no fruit. Saw a tree full of fruit at one of the stops by the river. Seems to do well here.

Bananas

Not quite as abundant as at some of the towns further South in Minas, but there are plenty here.

Manga

They seem to have only one quality, & this must be grown at Brejo. In there are extremely few trees in town. Have the fruit patch a wint on each. Saw some large specimens. They are green in color, very thick & broad, see

Jara

The Coronel says Jara
is good cattle food but
adds jokingly that it is
a dangerous tree to have
in the pasture as the
cattle stand under the
tree waiting for the fruit
to fall & die of hunger.
Symp of Casca is good
for bronchitis & pulmonary
trouble. Green fruit used
to wash clothes - soapy.

Caju

Ripe here in Sept

Laranja da Terra

Bears very heavily here
& fruits very rough &
coarser in appearance.

Laranja da China

Best fruits 3 for 40 reis
slightly smaller ones at
2 for 20 reis

Bonina

Climber found, between
Jannana & B. de S. Leaves
coriaceous, 8 ins long, lanate,
flowers like Convolvulus 5-7
ins across, pale lilac, deep
ening to purplish lilac at
throat. Climbs all over
small trees & blooms profusely.

Dr Antonio Generoso
de Silva

owner of Pharmacia
Imperialis. Has one of the
best farmacia in town &
is one of the most
intelligent men. Knows
a good deal re native
plants.

Apim Bengu

Outside of town there are
many fields of this; it is the
tropical grass here. Does
not seem to be cut
by animals being
used in an it to pasture

Brejo, Feb 14-14

Fruits seen here

Pinha

Imbu

Coco da Praia

Manga

Jaca

Tamarindo Fruta de Pão

Laranja Cabeça de

Linhaço

Negro

Jempapo { large tree
trunk 103 in
in circ 3 ft
above ground

Goiabá

Gua

Baranas

Caju

Brejo, Feb 14-1914

Ornamental plants

Oleander

Passiflora

some fine specimens

Flor de São João

Calceolaria

Erythrina

Alpinia

Gameliceira - name of
Ficus wh looks
something like Jaca

Jamara, Feb 14-14 Sat.

Imbuga

Prepared as follows. Milk is cooked and then allowed to cool. Pulp of fruit is passed thru sieve, sweetened, cooked, and then added to the cooled milk. It is slightly thick, like rich cream soup, with practically no color save a greenish tint. Pulp of fruit is put thru a sieve so no lumps are left. The milk seems to muddle somewhat the flavor is not very pronounced, at least the sample we had was not, but it was not very well made. Should not be too sweet. I should have plenty of fruit in it. It is a very pleasant sobremesa eaten for a cup with a spoon & not drunk out of a glass. Fruits used slightly green.

Imbuga de Cacharro

The Coronel spoke of this kind of imbuga, which is made without cooking. Paper prints are used for it than for the cooked imbuga. The milk is not cooked. The pulp of the fruit is passed thru a sieve, sweetened, and mixed with fresh milk. The Coronel says it is not as good as imbuga cozida or cooked imbuga.

Tea of Orange Leaves

At the hotel there they use no Cha de Indica, but make tea of either mate or orange leaves. Orange leaves are used principally, and make a weak tea.

Items to be noted in Jamaica

Abundance of Birds

Sail

goats

Sheep as draft animals + riding

Leather hats

Knives

Skins

Bahian character

Little white blood

Lace making

Canoe + Baroque

Jamaica Feb 15 1914

Ornamental plants here

Roses

Tuberose

Lamium 2 sp

Caesalpinia pulcherrima

Bougainvillea regia

Camellia

Abacatada -

The Colonel says this is great stuff. Pass abacate pulp thru a sieve + add lemon juice. Boil some milk, let it cool, and add the seasoned abacate pulp. Sweeten to taste & in mabuzada.

Januária, Feb 15 1914

Sunday afternoon. We arrived here Thursday evening. Put up at the Hotel 15 de Novembro, Clodomiro de Cruz Oliveira, prop. Rate 6\$00 per day. Decent accommodations and grub 100% better than in Pirapora.

Fruits

The principal fruits here are the Pinha, the Iniba and the Laranja da China. The Pinha is the fruit of this place. Where else have I seen them so abundant nor so good. The trees bear remarkably well and the fruit is of superior quality. The Iniba is also important, and highly esteemed, especially in the form of amburana. It is the best I ever tasted. The laranja da China is a very fine orange.

from Januária to

Jacaré
Morrenhos
Manga
Machada
Carinhanta
Lapa
Sítio do Matto
Rio Branco
Extrema do Urubu
Rama Jardim
Pacheco das Canoas
Machada
Barra
Leatim
Figueira Xizim
Pillão Abacado
Remanso
Oliveira
Centeei
Casa Nova
S. Anna
Jazeiro.

63+

From	Jannaria to -
15	Porto Maria da Cruz
85	S. Francisco
142	S. Romão
178	Barra do Piracatu
237	Extrema
286	Guaiçuby
314	Pirapara

The Coronel says
 the banana is the $\frac{1}{2}$ route
 da minha paixão. It is
 extremely fond of fruit of
 all kinds even down to
 the Jua, he says.

63-

Table of Distances on Rio São Francisco.	
Empreza Viagem do S. Francisco.	
From	Pirapara to - kilometers
Guaiçuby	28
Extrema	77
Barra do Piracatu	136
São Romão	172
São Francisco	229
Pedras da Meia da Cruz	299
Jannaria	314
Pacaré	364
Morinhos	412
Manga	426
Malhada	481
Carinhonha	483
Rom Jesus da Lapa	621
Sítio do Matto	644
Rio Branco	703
Extrema do Urubu	727
Rom Jardim	766
Piacho das Canoas	850
Morpara	858
Barra	930
Scatu	1000
Xique Xique	1010
Alvão Alcado	1091

	kilometers
Remanso	1167
Oliveira	1230
Sento Se'	1267
Casa Nova	1294
Sant'Anna	1322
Joazeiro	1369

Above figures taken from the schedule of the Company in the office at Januaria. The fare from Parapora to Joazeiro is 116\$000 1st class, with allowance of 50 kilos of baggage per passenger. We had 200 kilos more baggage than allowed free, and paid 15\$000 for it from Januaria to Joazeiro. Fare from Parapora to Januaria is 32\$000 by the steamers of the *Vida*, 26\$000 by the *Empresa das Lanchas*, without bed or meals.

Rio São Francisco
Notes by Dr. Quinn on voyage as far as Carinhonha:

Extrema

Ask for the Padre, who is a Dutch monk & a very intelligent man.

Don Cabelludo fixes up feed and an empty house.

São Francisco.

Hotel do Norte, kept by Arabes. Meteorological Station here.

Januaria

Hotel 15 de Novembro. The collector here, Sr. Emygdio Castano, is an intelligent & helpful young fellow. Meteorological Station here.

Morrinhos

Old church dating from about 1715. Tomb of one of the Paes here.

Manga Capitão Innocencio
can fix up an empty house.

Carinhanka

Hotel do Gregorio, just
above landing place.

Bom Jesus da Lapa
Very fine grotto.

- Above from

Dr. José Santiago Cardwell Quintana

Superintendente da Estação
Experimental para a Cultura
da Maricoba no Estado de
Mina Geraes.

Tymbrás 418

Bello Horizonte

Monday, Feb. 15-14

6 a.m. Left bank.

River banks 20-30 ft

high at town light red

clay, deeply eroded. No

houses but only a few

cabanas. Bank low on

edge of river opposite town

lots of goats in main

street of village

Few ~~hundreds~~ orange trees

also few sugar apples look-

ing well. 2 papayas at

landing.

Two hogs & plenty of dogs.

Bananas few. Saw one

grape vine & 1 lime tree

Shells about 1 mile back of

town.

Tamarind & 1 mango tree

Houses mostly mud, some

plastered. Some not, only

street with good houses

Some 4-6 or other cabanas

Two porcuings. Town officers

live close to 1000 pop.

lots of goats.

Monday, Feb 16
 Mervinhos - 9:30 to 11 a.m.
 Most interesting thing
 here is the old church
 said by Gunn to have
 been built in 1713. It
 is a fine old structure.
 Town dead about 800
 people

Manga 11:45 a.m. - 12:30 p.m.
 Small place, perhaps 400-
 500 people. Large
 Tamand tree & one coco
 palm in fruit. Few Pinhas
 Banks red clay, high at
 landing but low across
 river.

Below Manga banks get
 somewhat flatter until
 at Malhada they are
 nowhere more than 10
 and in many places
 only 3 to 5 ft. Quite a
 few islands in the
 river.

Monday, Feb 16 1914

Malhada - 4 to 5:30 p.m.
 Stopped here to discharge
 a little cargo & take on
 wood. Town very small
 absolutely dead. Only mud
 huts and 2 or 3 poorly stocked
 stores. Too near Catumbauke.
 Directly opposite mouth of
 Rio Cocimbar. Swampy
 50 ft back of river, must
 breed mosquitoes.
 Pinhas Laranga manio
 banana here. Pinhas look
 fine, abundant. Town not
 more than 3 or 4 hundred.
 All dark & all lazy.

Catumbauke 6 p.m. to 9 p.m.
 Town said to be 2000.
 Looks better built than
 Jamaica, has a number of
 fairly well stocked stores,
 seems to be in rather
 prosperous condition, com-
 pared to most of the
 other towns along the Rio.

Tuesday, Feb. 17 '94

Bom Jesus da Lapa

Arrived 5 a.m.
left about 8.30 a.m.
Five large tamarind trees
at landing
Hotel Rio Branco

Fala si for conveniente
fala, porém baixo e pouco
que Deus e o lugar tampan
outro coisa não consegue
- Inscription in Grotto Church

Remarkable number of beggars
here gathered around the Grotto
church

Padre came on board
post cards

Town 2000 or thereabouts
Seems fairly prosperous.
Houses good.

Tuesday, Feb 17

After leaving Lapa the
river spread out, with
almost no banks in
places marshy along the
edges cut up into
numerous channels in
parts.

2 p.m. to 3 p.m.
Town lies for 5 hundred
yards from river, with much
low land in between with
standing water. Lots of Arat.
cane in low land. Old
church 100 yrs, but not
impressive & poorly preserved.
Just the Igreja do Soreto in
climbing into the 2nd story
of the new jail to take
photos. Some signs of life
are yet the place is
pretty dead. It was hot
on shore - a dry heat, and
the glare was intense.
No Pinhas. Karanjas manao
but not much altogether.
Saw first Carmelita

Tuesday, Feb 17 1914

Bom Jardim, 8 p.m.
Too dark to go ashore here or make out anything of this town. Saw a couple of large coconuts on rubber I took.

Getting into more hills down this way, but the river in many places spreads out very much with many islands & much grass along the edge, looks not well defined in many parts.

Today has been the warmest since leaving Paraíso.

Hot on shore but cool and delightful when the boat was in motion.

There certainly is very little life in this country & very few agricultural products - manioc, milk, and a very few fruits.

Saw no ripe oranges since leaving Paraíso.

Wednesday, Feb. 18 1914

Morpará - daylight to 11 a.m.

Delayed here waiting for mails. Very small place, saw no stores at all.

All mud huts, palm leaf thatching. Men making

fish traps of cane, only took big knife no nails nor

wire. Lots of corn drying in sun. Some wild animals

eat all the manioc, man says. Woman cooking almoco

outside of hut had fish, baked beef & abóbora. Men

very pleasant, willing subjects for photographing.

Barra 3.30 to 12 p.m.

Thursday, Feb 19 1914

Xique Xique 5.30 - 7 a.m.
A good sized town, but
almost devoid of vegetation.
Coconuts few. Some
good sized shops which must
supply interior points. Men
selling dried gumnuts in
quantity. Banks very large
practically none. Land
level. Hills in distance.
Carnaubas not abundant.

Pilão Arcado. 3.30 p.m.
Town of perhaps 1500 - 2000.
Very little cultivation in
the place. Streets very
gravelly & dry, houses
mostly poor. Large
open. No big much life.
Bought 34 Carnaubas a chest
at 1 cobre each, storekeepers
say they are not much
used any more, and can
furnish a quantity only
in order.

Thursday, Feb 19 1914

Large Tamound tree at
landing, but it looks stunted & is rather knarley.
Mandac few. Few Carnaubas
in town, but saw
several big patches of
them further up the Rio.

Remano, 8.30 p.m.
Stayed here over night.

rubus very abundant &
sold at about 100 reis a
gallon.

Coronel Angelo Camilho
brought us some seeds
of the Savellera. They
are oily & delicious to
the taste. The thorns
of the tree are very
poisonous.

This is a good sized

place, with apparently
a good deal of trade.
Better than the dangerous
town seems about as
large.

Capim mandante

a large field of grass
just behind town, which
appears to us to be *Andropogon*
is called mandante by
the natives. It is
5 or 6 ft high very thick,
& now in full bloom.
Mixed with it is a little
grass of very similar appear-
ance except that the seeds
are much larger. This is
called *capim de arroyo*, but
is not planted, spreading vol-
untarily among the man-
dante.

Saw but one coconut
here. Few small tamarisks.
Very little cultivation in
the town & practically no
shade trees.

The country here is

very flat, and only a few
feet 6-8 above the present
level of the stream. There
are mountains in the
distance, both up and
down stream.

Vegetation is low. Lots
of *Spina* trees & must be
plenty of umbus, judging
from the quantity of fruit
on sale.

In market on edge of
river were mangos, coco-
nuts, pinhas, a few
aranzas, umbus, abocora,
mango, corn.

Guadalupe, no Bra-
zil, no, some *Guadalupe*
in *Guadalupe*, *Guadalupe*
also, some species of *Guadalupe*
in *Guadalupe* - *Guadalupe*
El Carmel Belino.

6:50 Friday, Feb 20 1914
Oliveira, 3:00 pm
Work on wood here.

Canudo - pink flowered
shrub common on wet
soil.

Malva de Bassura
Small mallee with
deep yellow flowers.

Sento Se' 5-6:30 pm
Town lies about a mile
from shore across a
flow spit filled with water
which has to be waded.
Small settlement on the
river bank at steamer
landing, with one vendor.

Lots of *Carnaubas* in
the vicinity - Max says
practically no wax is
made now, as the jag-
eater leaves the
palms to produce seed.

651
which is fine hog feed.
Bought 20 Candies at a
candy shop, all these were
in settlement along shores.

Saturday Feb. 21 1914

Sant' Anna 6:00 pm
Small place on right
bank. Many *Carnaubas*
below here.

Salsa brava

Forto Florestal

{ Capsm marmelada
" mimosa
" coloma
" fino
" grama

Five varieties already
planted by Dr. Zehntner
in his experimental
plot of grasses. He
expects to plant about
30 eventually.

February 23, 1914 Joazeiro

We arrived here on Sat. the 21st.
put up at Cur Hotel, 6\$00 a per.
Back when the Sabia sang.
Joazeiro is probably a town of
13,000 people, and has a good
deal more life than most
of the river towns. It
seems in fact like quite a
busy place, and is fairly
well built and clean. The
stores are fairly good sized
and well stocked.

The town lies on the
right bank of the river
as one comes down; on
the left bank lies
Petropolis in Pernambuco,
also a good sized place,
perhaps 10 or 12 thousand, but
without the same activity
as Joazeiro and not nearly
so many good stores or
buildings of other kinds.
Between the two towns
lies the Ilha do Fogo
in the middle of the river,
island about $\frac{1}{4}$ mile long.

654 Joazeiro Feb 23 1914

Horto Florestal

of the Inspectoria das
Obras Contra as Secas.
Situated on the right or left
side of the Rio, about 2
kilometers from town. Reached
by a road which leads
down the street on the
right side of the Church.
Easy walking distance. Can
also be reached by boat if
desired. The Director is
Leo Zehntner, a German
type in Java, seems to be
an energetic and business
like fellow.

The Horto owns about 14
acres of land, a light blue
silt soil of the river bottom.
dark gray in color, and
apparently of very good quality.
Dr Zehntner says the
maximum temperature
is about 40°C , and the
annual rainfall about
1500 mm.

655

400 mm. The rain falls
during the hot season, the
dry season is cold, so
seems to me for this reason
the outlook for date growing
is not bright.

Eucalyptus

The main work of the
Horto is in Eucalyptus. An
effort is being made to prove
that they will succeed here,
in order to convince the
railroads & large land owners
that they will take
it up. The outlook is very
promising. Of 15 kinds rubra
and terrestris seem the
most successful so far, although
several others are doing
very well. globulus is
nearly a failure. Much
of the seed has been obtained
from São Paulo, some
from Payne in Los Angeles, &
some direct from
Australia. The average
these trees is

considerable

Capim

We collected 38 kinds of grass on the Isthmus, most of them only found in occasional small bunches. *Capim catiguera* and *Capim favorita* are both grown on a large scale. Dr Zschornak will send material or seeds of anything of the kind if we will write him. He is starting experimental plantings of all the obtainable

Grapes

There is a vineyard of about 100 x 300 ft on the Isthmus but it is now practically abandoned & the birds eat the grapes before they are ready to eat. Some work was done here before the station was taken over by the Abasco Central as Suacas.

Date Palm

Dr Zschornak says nothing has been done here with the date as yet except the planting of 3 or 4 seedlings now $2\frac{1}{2}$ ft high. I don't believe the fruit will ripen here, as the rains which come during the hot season.

Joazeiro, Feb. 24, 1914
Guai tree

This is common on the catangas about town but do not grow in groves. Instead one finds occasional specimens or several specimens mixed in with other growths. In places where the stock can get at the trees when young they are kept stunted and dwarfed, forming a mound of green 2-3 ft high. When allowed to reach maturity it is a beautiful, softly densely foliated tree 30-40 ft in height. The trunk is solid, & the tree is usually branched 6-7 ft above the ground. The leaves are deep green in color, somewhat hard & brittle in texture. The thorns are fairly abundant but short and not

dangerous.

The fruit varies greatly in size on different trees. The largest fruits are slightly broader on each in diameter than the smallest one 1/2 inch or even a trifle less. They are produced in great profusion, & when ripe are light buff yellow in color. The outer pulp is 1/4 inch in thickness, white, separates readily from the single seed surrounded by a sticky white pulp. The seed is the size & shape of an olive stone. The pulp adheres to it very closely, and has a sweetish mucilaginous taste. Animals are very fond of the fruit, but they reject the seeds. Boys seek the pulp from the seeds.

Joazeiro, Feb. 24, 1914

Canudo

This is the shrub with magenta pink *Convolvulus*-like flowers, which we have seen coming down the river. Here it is not only abundant along the river banks, but some little distance back into the dry lands as well. The shrub is loose and open in growth, with many stems arising from the ground and most of the main branches near the same place. Height varies greatly, 4 to 12 ft. Its flowers are 3-4 in. in diam. magenta pink but varying in depth of color on different plants. They are produced in the greatest profusion, but only last until mid-day if the sun is shining.

Joazeiro Feb. 24, 1914

Melão

Joazeiro is famous for its melons. Many are shipped to Bahia. The commonest type grown, and in fact the only type I have seen, is a long smooth deeply ribbed melon with salmon-colored flesh very similar in appearance to some of our large summer muskmelons. The biggest ones will weigh 12 to 15 or perhaps even 20 lbs. The flavor is distinctly that of a musk melon but not so pronounced as a Cantaloupe. The quality is good, but the melons do not seem to be anything out of the ordinary and scarcely worth introducing. The prices here range from 100 or 200 reis up to 500 or 600 reis, according to size.

Goazero Feb 24 1915

Pinkia

This fruit is quite abundant here, though I have seen no plantations near Jamara, only 1 or 2 trees in a yard. The trees bear exceedingly well, but considerable of the fruit is of small size, although there is plenty of large fruit as well. Those we sampled were not nearly as good as the ones we ate. Can you see the reason? One reason is that the fruits are picked before the carpels separate and are allowed to soften off the tree. By this method the flavor & quality are greatly impaired. The fruit is changed here varies from uniform for small specimens to 2 for 100 reis for the largest ones.

Melanra

These are also abundant here. Dr. Schottner says they grow with no care whatever. They are of fair size, we did not sample any but the quality is probably fair.

Wasa

These are nearly gone by, only a few being seen in the markets. They are evidently vinifera grapes, of only fair appearance, not ripening evenly on the vine. Last year they are selling for 1/2 for kilo.

Those on sale are from da China. Have seen a few trees of umbigo here, a few plants, which may have come from Bomfim.

Petrobrasil, Feb 22, 1948

Catinga

The Catinga land comes right down to the edge of town, and is the most barren soil imaginable. - Coarse gravel cobblestones, with pebbles of any soil, quite different from the river silt around the town of Joazeiro.

The vegetation in the area is all low & consists principally of the following:

Tavellera

Shall be 20-25 ft high, some times only a shrub. Young in the Catinga. They do branches armed with short sharp spines which are very painful in height.

The fruit is a 3-celled capsule, the seed looking much like a castor bean and being good to eat. See notes under Peperomia

Ligue Lague

a common cactus, cylindrical, deeply grooved, very spiny. Other cacti are also common.

Laba braba

The name given by man to the pink flowered species (3) which we have admired coming down the river. Here it is fairly common on small shrubs & sometimes even takes a dwarf shrubby form itself.

summae

Several shrubs of this order

Joazeiro to Bom Jim, Feb 25/19

After leaving Joazeiro (630) we traversed the Catting lands for the first two hours or more. These lands are extremely uniform in character, apparently have good soil in many parts, and just now are covered with grasses + herbs brought out by the abundant rains. The commonest growth are the Tavellera, the Imbu, several Cacti, a white flowered, mimosa-like leguminous shrub, and a few others. None of the plants are over 25 or 30 ft in height. The Imbu is quite common. Several times I saw what appeared to be an Annonaceae in fruit.

Angico (Called Barro by the RR)

Imbu are not really abundant here.

Station is crowded with people, selling them. A basin of them can be bought for 100 reis. 30 or 40 boxes of Peruvia type full of them were shipped on the train.

Hummerin

State of Goias used to be. The character of the country is undergoing a rapid change from the dry Catting land with Cacti and thorny shrubs to the more common type of Brazilian vegetation such as one seen in Maringá + some what similar to Bahia, there is no timber but the land is covered with low growth. It is now the rainy season + everything looks greener than it probably would in the dry season.

Come in at 11 a.m.
 Put up at the Hotel
 Lobo, near the station - it
 is breakfast station for the
 swinging train.

Town appears to be 10-15
 thousand. Great many stores.
 Some of them excellently
 stocked, but we have
 seen since leaving Belo
 Horizonte. Must be a good
 deal of trade from the
 surrounding country.

Good sized church here not
 particularly attractive. However
 well built as a rule. Some
 few very good. Place in
 general well over 20-30 low
 hills and there is absol-
 utely no system to the
 streets.

Hotel quite fair grub and
 very good rooms. It
 seems to be the only
 one in town.

Com Jim, Feb. 26, 1914

Laranja de Umbigo

There are a good many
 trees of the Bahia orange in
 the gardens here and the
 people seem to understand
 that oranges must be grafted
 to be good. Just now there are
 a good many more laranja
 de choca offered for sale at
 the markets than umbigo,
 but this may be because there
 is more demand for the
 umbigo. They are not so
 abundant at this season of
 the year.

We have had them on the
 table here at the hotel every
 day. The fruits are about the
 same size as the average
 fruit at Bahia, and those
 which I have eaten have
 impressed me as being a little
 better in quality than the
 average at Bahia, perhaps
 because of the different
 season. They are sweet and
 deliciously flavored. The

670 Born Jim, Feb 26 1914

flesh tender and very juicy.
I do not believe I have
eaten a better orange any-
where.

The trees are well laden
with fruit, but only a few
look ripe now. The main
crop is probably coming in
June & July.

Persea

There are a good many
trees here. The fruits are
in the shape of about 40
ribbed sacs, or good sized ones.
As in Goazira they seem to
pick them too soon here.
I have eaten none as good
as the ones I had in
Gannaria. The trees bear
well here.

Born Jim, Feb 26 1914

671

Coconut

Good many palms scat-
tered thru town and the
nuts are abundant in the
markets. Have seen no
green nuts on sale. Palm
looks a trifle yellow in
color here, but makes a
large growth & seems to do
well.

Laga

One large tree in front of
pub. Photographed & good.
Many green fruits on it; they
are more elongated than
mine and more elliptical,
otherwise very similar in
form and size. The large tree
is in bloom on one side,
the other side in fruit.
Foliage & flowers greatly
resemble Imbu tree larger
in growth, but of same
appearing habit.

672 Born Jim, Feb 26 1914

Cajin'

Fairly common here, & I am inclined to think some of the trees may be indigenous. Only a very few fruits ripe now.

Imbu'

This is the fruit of the country just now, - for we clear up the São Francisco. The streets are full of skulls & skins. Men bring in the fruit on horses, loaded in two leather boxes, one on each side of the horse. There are numerous trees in the garden but most of the fruit sold comes from outside. There are said to be abundant trees in the lowlands, but we saw none on our trip into the nearby hills.

Born Jim, Feb 26 1914

673

Capim guine'

Called capim assu' by woman. I enquired of. This is the first place we have seen this. It is common, there being several plantations of 1 to 3 acres. It is planted in holes 4x4 ft, the holes 12" across. Young rooted stalks pulled from the old clumps are used to plant.

There are 30 to 55 stalks from one clump, the highest being 8 to 10 ft. The flower heads are large, one we measured being 26" from the first branches to tip.

Said to be excellent for cattle, but almost too fattening for horses. It is fed to horses in conjunction with other feeds. Said to be fine for milk production.

674 Bon Jim, Feb. 27, 1914.

Azertong.

(Myrtaceae) given this name by one man I asked another called it *Patong zink*. Shrub 8 ft high, spreading in form, growing on low land near small lake. We saw a large number of plants, which all appeared to be the same thing, but only one was in fruit. This one was fruiting most prolifically, all the small branches being loaded with fruit, about $\frac{1}{5}$ of it ripe now, the remainder in full green and beginning to color in most cases. A few flowers were open.

leaf,
natural
size.

color
light
green

surface
smooth;
veins under
tinct.

675



lat. view & cross sec. of fruit
natural size

General form oval to somewhat elliptical, cross section round, regular, size length $\frac{1}{2}$ in, breadth $\frac{1}{2}$ in, there being considerable variation in these dimensions. Base rounded, apex rounded, eye $\frac{1}{16}$ in wide, open, the apex persistent but very small, brown, stem $\frac{3}{8}$ - $\frac{1}{2}$ inch long, very slender, surface slightly undulating, glossy deep purplish maroon when fully ripe; stem thin, tender, adhering closely; bark $\frac{1}{8}$ in thickness, light greenish white in color, juicy, soft; flavor subacid, slightly resembling the pitanga but not so resinous; quality good, seeds usually 1, sometimes 2, occasionally 3 in number.

676 Bom. Jan. Feb 27 1914

oval to elliptical, slightly compressed $\frac{3}{8}$ in. long by $\frac{1}{4}$ in. broad, fitting closely in the seed cavity, but adhering to the flesh, greenish purple in color. Season here February & would extend in to March.

Several people of whom I inquired the name called this fruit *Asertona*, while only one called it *Pitombá* zinha. All said the people eat it, & one woman added that it was good to make doces.

In flavor the fruit greatly resembles the *Gynerium*, *Yama*, but it is not quite so bland. It is not nearly as strong in flavor as the *Pitanga*. Would be well worth cultivating.

Bom. Jan., Feb 27 1914

677

Arnonaceae

The spec. of *Rollinia* (?) collected here was found along the RR track about 2 km. below town. Two plants were seen here, growing among other low scrub along the right of way. They were both about 6-8 ft high, upright and not very spreading. In some flowers and unripe fruits were found, on the other a few ripe fruits & the remnants of 2 ripe ones which the birds had eaten.

We saw a tree in a garden in town which appeared to be the same thing. It was about 12 ft high, with a broad, compact top & a single trunk, much like a *Chirimoya* in appearance. There were a few flowers on it but no fruit. I asked a native the name, but he did not know the plant, and thought the

678 Bom Jim, Feb 27 1914.

fruit inedible.

Capim favorita

Just quite a field of this grass below town. It is like one with red flower heads. The field was probably 2 or 3 acres in extent.

Manga

Have seen no ripe fruits here. There are a few trees scattered about the gardens.

Jaca

Have not seen the trees here but the fruits are on sale.

Tobacco

We passed several small fields just before entering town on the train. Found the leaves curing at a house on edge of town. They are being

Bom Jim, Feb. 27, 1914. 679

on outside of house to dry. The twisted into a rope $1\frac{1}{2}$ ins. in diameter, & these rope wound on a stick until there is a reel 50 to 100 lbs in weight. After putting on the reel it is allowed to cure a while longer before sent to market. Woman said they were getting 3¢ per arroba for the product now, but that it hardly paid for preparing it.

Jua mirim

We photographed fruiting branch of the tree which we got under this name in Pirapora. It is abundant here, one of the commonest native trees in some localities. The fruits are just commencing to ripen, and are orange yellow in color, nearly like seed.

680 Bom Jim, Feb 27 1944

Laranja de Umbigo

While waiting for the train to leave Bom Jim we bought 4 Bahia navel oranges from a boy who had them to sell to passengers on the train. The price was 2 for 1 tostão, and they were fine ripe specimens, as full of juice as an egg is of milk. In size they were about a good average; in color greenish & greenish yellow, varying in different places on the skin. The navels were rather large. As specimens, seeds, none, and flavor simply the best there is; not quite as sweet as many Bahia in Bahia last Dec.

This is certainly the orange not only Brazil's finest, but probably the finest in the world. I'm eating quite

Bom Jim, Feb 27 1944

681

Bomã (Pomegranate)

A good many of these were peddled at the RR station. They are ordinary in appearance about like those at Bahia.

Bom Jim

Alt. 436 m

Lies at the South side of range of low mts, on whose foot hills the town is built.

Left Bom Jim at about 2 a.m. on the carga or freight train, which was due to have left at 3.33 p.m. the preceding day. The engine broke down above Bom Jim. We ran from 2 o'clock on and left Guapindas at 7.30, the time the train normally leaves after lying here over night.

Cactus

Spur with pads 2
6 ins. and abundant spine
 $\frac{1}{2}$ inch long collected
beside railroad track about
2 miles below Salgado.
5 pads.

Vasidreira

A mint-like plant, said
to be an stomachic.

Mr. Blackford or Mr.
Blackmore, formerly a
missionary here, shipped
tree that Mr. Benn
some 20 yrs ago. Mr.
Benn bought the tree
to ship himself.

Worthing; cobrador in the
L. & A. bank, His father
had the grove from which
Benn got the tree - it
was at the Roca de
Guemado, near water
works.

Above information from
Mr. J. Benn of Bahia,
who has been here a long
time.

684

Bom Lim to Bahia Feb 28

Left Bom Lim at 2 a.m.

Queimadas 7⁰⁰ a.m.Serrinha (station called
Rio Branco) 1⁰⁰ p.m.Alagoinhas 122 km from
Bahia 7⁰⁰ p.m.Left Alagoinhas March
(Sunday) at 6⁰⁰ a.m.Arrived Bahia 11⁰⁰ a.m.

Bahia, March 5 1914 685

Cimbu (Spondias tuberosa)

long etc. nat. size of a good
average fruit.

General form rather variable,
oval to round; cross
section round; size varies
somewhat, length about 1 to
1 1/2 in. breadth 1/8 to 1 3/4 in.
Base rounded or very
slightly flattened at
insertion of stem. apex
rounded or slightly
obtus. stem long, med-
ium stout. surface
smooth, pale, semi-
translucent green to

light yellow in color according to degree of ripeness, slightly streaked longitudinally with lines beneath the skin. Skin thick and rather tough, not easily broken, pulp adhering closely to seed, translucent whitish green in color, extremely juicy, aromatic, flavor pleasant, aromatic, slightly suggesting an orange. Seed compressed oblong to oblong, sometimes slightly larger at one end than the other, about $\frac{1}{4}$ inch wide and $\frac{3}{4}$ inch long, rough on the exterior & with a few small depressions on outside to which pulp adheres.

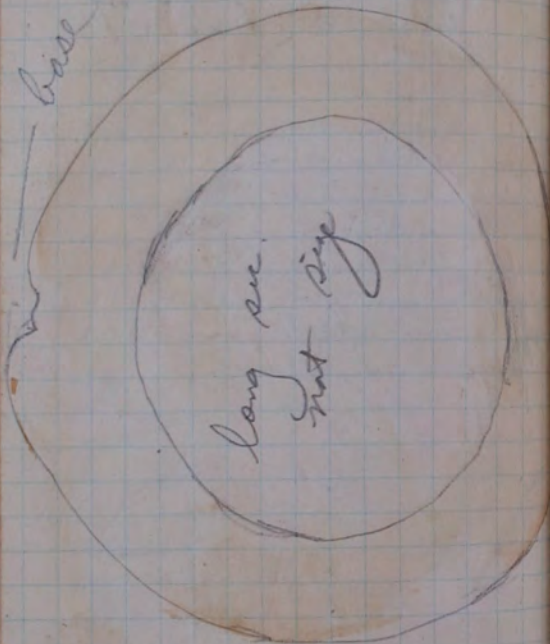
This fruit is usually eaten by breaking the skin into squaring the pulp out into the mouth. The pulp

is almost entirely juice. The flavor is rather peculiar but is a rule very agreeable when the fruit is ripe. When green it is a little too acid to eat out of hand.

The size and shape, but particularly the size, varies a great deal in different locations & on different trees. Dr. Schott says there are two trees whose fruit is alike.

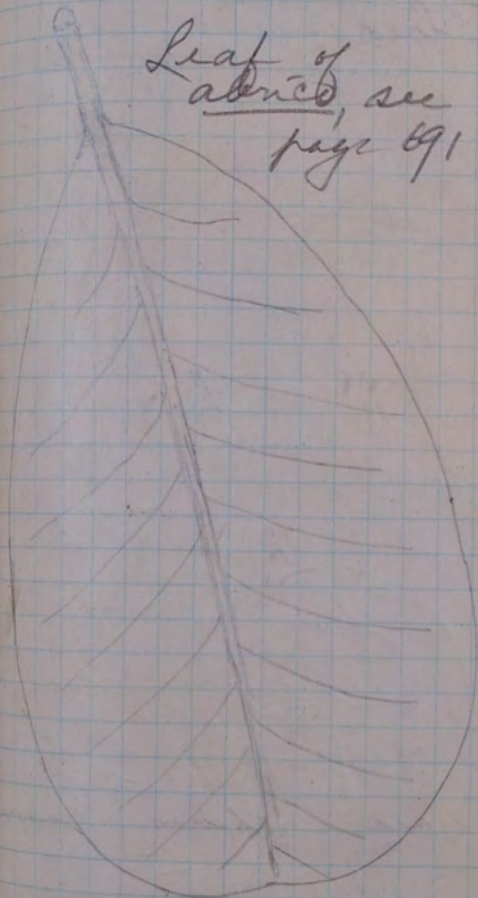
688

Bahia Mar. 6 1914

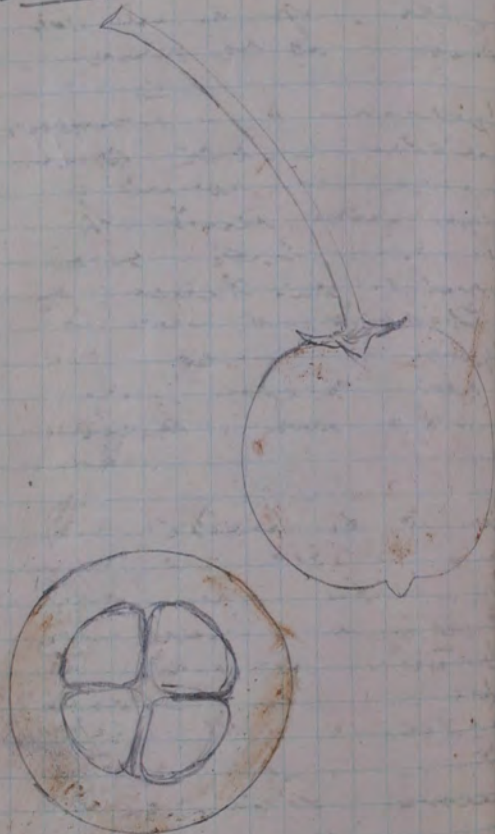
Abacatepurchased in the
market at 200 reis.Color reddish maroon
with many dots.

689

Bahia Mar 5 1914

Leaf of
abacate, see
page 691

690

Abuco

Seeds 2 to 5

Balua, March 7 1914 ⁶⁹¹Abuco, erroneously called
Sacopari by Dr. Angello.

General form roundish
oblate, cross section
regularly round;
dimensions, length $1\frac{3}{8}$,
width $1\frac{1}{8}$ in. base
slightly flattened; apex
flattened and crowned by
prominent conical pro-
uberance, about $\frac{1}{8}$ in. in
length at base; surface
smooth, color when
fully ripe, deep yellow,
usually tinged with
green toward base, skin
thin, hard, dry and
brittle, no demarcation
between it and the
flesh, flesh creamy
yellow in color, some-
times tinged with
salmon, dry and
mealy in texture,
almost no odor; flavor

692

slightly sweet but
lacking in character
and very dry; quality
fair. seeds 2 like the
murder, commonly 3
or 4, large, elliptical,
compressed to make
them triangular in
cross section or hemi-
spherical according to
the number present
about 1/4 inch in length,
surface smooth, reddish,
glossy cinnamon brown
color.

This appears to be the
fruit we saw green at
Methuen in October.
One says it is not
the *laepari* (*Caltonia*
insigne). It does not
appear to me at all. Dr.
Angell says it is wild
here but very scarce.

Bahia March 6th 1914 ⁶⁹³

Fruits in Season.
In "passon" the season
of abacaxi and I have
only seen 2 or 3 poor look-
ing specimens in 2 or 3
stands to the market. Since
we left the pinha has
come in with a rush & is
now one of the principal
fruits in the market. Some
of them are about the
largest I have ever seen.
The oranges are not as
abundant as when we were
last here, but are fairly
plentiful, at 100 reis each.
Pinhas are 100 to 300 reis.
Jacos seem even more
plentiful than in Dec.
Alcornoques are on a full
blast, 100 reis up, up to
a 1/2. They are good. Caju
practically none; have
only seen one plate in
the market. Gumpays
are now abundant, at
100 reis each.

694 Bahia, Mar 6 1914

Aipim

Not more widely planted because it does not yield so heavily, the roots being smaller. Only the demand from there is greater than with mandioca. A man stealing a root of aipim can make a meal of it, but with mandioca one root is not worth bothering with for farinha. Aipim never planted separately here, but in the center of a plantation of mandioca. Aipim makes farinha, but is not used because of the heavier yield of mandioca.

Bahia Mar 6 1914 695

Banana da Terra

Banana to be cooked as a vegetable, boiled with beef - pot-au-feu. Can be fried with butter a little sugar + cognac added. Should be sliced for this purpose. Bunches weigh up to 80 kilos. Here it produces ripe fruit in 2 yrs from plant. Bunches are very slow in reaching maturity. Can not be grown in clump, divided after fruiting & kept single stems. Requires rich soil. Small sometimes with 6-8 bunches.

Maca (Apple) Banana
Produces best in lands not clayey. Likes sandy soil. Fruit is hard on clay soil. For getting raw. Bears in 1 yr.

696 Bahia Mar 6 1914

Maranhão also
known as "Pauca
e boas"

In cooking or being
large, more delicate
than tara, long & slender
bunch, stem, few fruits

São Thomé

Very good to bake.
Commonly given to children
& usually cooked. Short
very plump, bunch
compact & short

São Thomé Cayenne

larger than S. Thomé
baked & raw

Bahia, March 7 1914 697

gelô
for gelô
(blanquette)



long, see
nat size.

One of the commonest
vegetables in the
markets both here and
in the interior. It is
used only cooked and
is considered especially
good for the stomach.

In appearance it much
resembles a small
tomato except in the
distinct character of
the stem. The interior

as almost identical
with that of the egg
plant, a tough white
flesh containing a
few rows of whitish
seeds.

The color of the fruit
when sold is usually
green. When fully ripe
they become scarlet being
tinged with green.

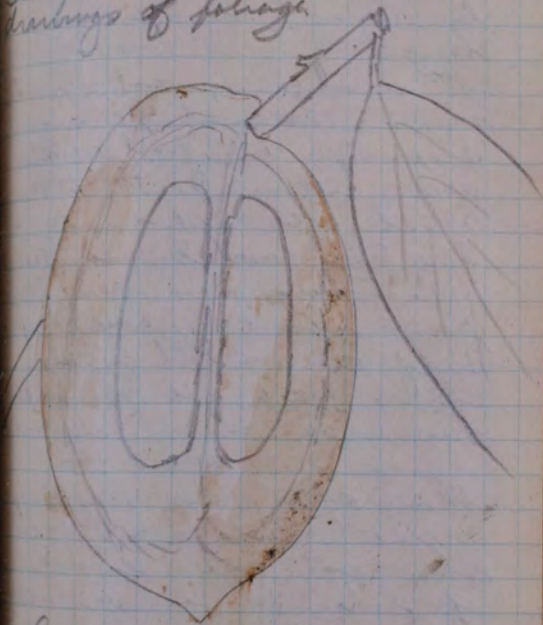
When cooked the fruit
is better, similar to that
of a bitter egg plant. I
have only seen them
boiled, always served
with meat.

The one drawn is
about average size. The
size does not seem so
vary as much as with
tomatoes, and I have
very few more than
 $1\frac{1}{2}$ in diameter.

Bahia Mar 7 1914 699

Abiu (Lucuma sp.)

See previous
drawings of foliage.



long section of fruit,
natural size.

See next page for
description.

Bahia Mar 7 1913

Abiu

General form elliptical, sometimes broadly so; cross section regularly round; dimensions, length 2¹/₂ - 3 ins. broad at widest point 1¹/₂ - 2 inches. base tapering slightly, the fruit sessile and attached to the small branches; apex broadly pointed, usually terminating in a conical point about 1/4 inch long. Surface smooth, color clear deep yellow, with numerous small subcutaneous dots lighter in color than skin, and frequently greenish spots near base; skin not well defined, if taken to include all between the exterior and the edible flesh it is about 1/5 - 3/16 inch thick; if considered an integument only it is thin, tough +

from flesh; flesh surrounds the seeds and is transparent, whitish, gelatinous in texture, gradually becoming firmer towards exterior until it becomes tough and inedible 1/8 inch from skin (external), juicy, not very aromatic; flavor strongly similar to that of Achras sapota, but not quite so sweet, agreeably pleasant. When first picked a milky latex exudes from the interior of the fruit which feels like rubber on the lips; seeds 1 to 3, commonly 2, oblong or cylindrical, sometimes flattened more or less on 1 or 2 sides, smooth, dark brown in color, the pulp separating from them fairly readily 1 1/2 ins long, 5/8 inch in diameter,

The season here appears
to be March.

The fruits are sold in the
market at 100 reis each
for the best specimens.
It is a fruit which I
find quite pleasant to
eat, but must not be
eaten green or too fresh
from the tree or the
blotch is objectionable on
the lips. It is not
common here at Bahia.
I saw more trees at
Rio. A very attractive
fruit in external appearance.

Jéka di Jôn
 Cayu Ralado
 Almagu Ralado
 Competa di

Book by Cornman

describes the Indians

Luvilha de Preguiça
 Luvilha de Preguiça

Name of Town - Population

Geographic location

Transportation facilities - how
 altitude reached
 character of country

Climatic Conditions

max. & min. monthly temp.

Rainfall per month

Annual rainfall

Winds - prevalence & severity.

Soil

Character

Drainage

Hotel Accommodations

Important People

Remarks

Serrinha
big manão

Alagoinhas
Mangueira
groves of orange

JBP link to Luminant

W H Hooper
~~Baxter~~
~~Chaffin~~
Lippell
Knawles
Colkins
Gunt Lu
Deak Jny
Cornell

Asser' Gunn'
Planted about 4x4
ft. Nalgau dry about
1 ft in diam. It rooted
stall pulled off the old
stool & planted on its
side with the roots 4 in
below surface. Must be
for 5 years of this growth
in this immediate vicinity.

Man say excellent for cows
& milk production. Good
to fatten horses but must
be fed to them in conjunction
with other grasses.
Otherwise it is too fattening.

Dark Supt
Fruit here
Lagoon Sta
gl Corruers

Last 2 reports *Limnodynastes*
for de Baeta News

Rio Jacinto
922
8 o'clock

Horacio José Chello

Bomgosto da Calçada
no 69 Bahia

Speed
large
dress

Bello Horizonte, Feb 1

Sent P.B.O. checks No. 1.

A 290619 \$1.00

C 1804697 \$20.

9. Laranja da Terra
10. " " China
11. Pinheira 5 yrs old
12. Capim Colônia
1. Imbuira
2. Pharmacia Imperial
(3 pul' ed with 2)
4. Praça do Rosario
5. Pateca gam

Capim favorito at
Sturmon

Capim assu

seed head 26 in
planted 3 yr alt. 40-50 in stalk
in field 10-15 in

General form
cross section

Size
weight
measurements

Stem
insertion, length, character.

Base
character
shoulders
cavity, form, depth, breadth
markings

Leaf
form, nat. location + size

Surface
texture, color, dots

Skin
texture, thickness, adhesion

Flesh
color, aroma, texture, juice

Flavor

Quality

Seed

form, size.

Remarks Season
Characteristics of Growth
and Productiveness

Bahia, Sat. Mar. 7, 1914.

Crème de Abacate

An avocado ice cream which is served in the restaurants here at 500 res. the glass. It is light yellowish green in color, and rather too sweet for my taste; with a little less sugar it would be an excellent way of serving the avocado. It is made with milk, avocado pulp pressed thru a sieve and sugar. I imagine it is the same as "abacatada" which I was told about at Jamaria except that it is frozen. It has the avocado flavor very pronounced, and the milk blends with it very well.

Bahia, Sun. March 8, 1914.

Receita do Vatapiá

"Para uma chicara de fuba' de arroz tira-se o leite grosso sem agua de um coco. Depois tira-se umas tres chicaras de leite com agua, fila-se uns dois espetos de camarões, cebola alho e pimenta, mistura com o fuba', leva-se ao fogo para cozinhar com o leite ralo e o ^{agua}. Depois de cozido beta-se o leite grosso, levanda-se novamente para cozinhar."

- Mrs. Argallo.

For one cup of rice flour: take one coconut, grind the meat and squeeze out the juice thru a cloth. The milk thus obtained is the leite grosso. Now take the pulp and put with it 2 or 3 cups of water, then squeeze

again thru the cloth, obtaining 2 or 3 cups of thin liquid, the leite com agua.

Now crush about $\frac{1}{2}$ lb. of dried shrimps, a little onion, garlic, ^{salt} and pimenta, with $\frac{1}{2}$ cup of roasted peanuts or Cajun nuts, and mix this mass with the 1 cup of rice flour. Then add the 2 or 3 cups of leite com agua and about half a cup of dende' oil.

Put on the fire and boil until it appears of the right consistency, taking $\frac{1}{4}$ to $\frac{1}{2}$ hour. Then take from the fire and add the leite grosso, and boiled fish, fresh shrimps, boiled chicken or other meat intended to go with the Vatapiá. Put on the fire again and allow to come to a boil, then serve.

- Mrs. Argallo.

Bahia Mon. Mar 9 1914

Sorvete de Caju

About the same color as
mango, but a little more
orange colored & clear. In
flavor it is very agree-
able. Have only seen this
offered once.

Sorvete de Mangaba

This is the only form in
which I have eaten this
mangaba & liked it. The
sorvete is white, and
the flavor is very pro-
nounced but lacks most
of the better tang
usually objectionable in
the mangaba.

Crème de Abacate

as well as being made
with milk & frozen in the
form of an ice cream,
this can be prepared
without freezing as follows:

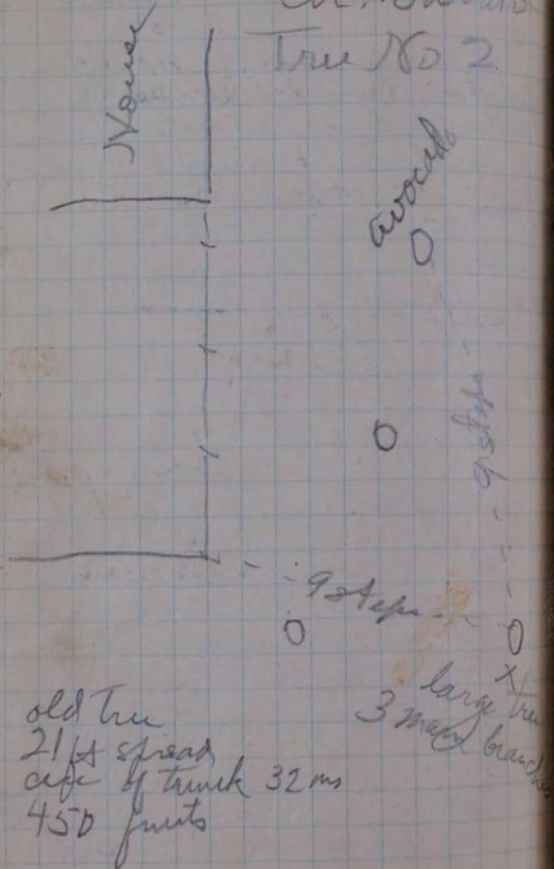
Beat up the pulp of
an abacate until it is

light and creamy, sugar
it to taste and add
sufficient cracked ice to
make it cold. If desired
lemon juice can be used
as a little wine. Pre-
pared in this way it is
served in the restau-
rants here. Cinnamon
is sometimes dusted on
top.

725

Col. Barreto

Tree No 2.



Col. Barett's orchard

No. 1 is East of house
 3 steps from old dead tree
 to south of it. Due east
 of Caryota palm. Mango
 about 8 steps away

No 3.

Big jaca

tree 18 ft high
 18 ft spread
 circ of trunk
 21 1/2 ins.

OX No 3
 5 main branches
 335 fruits

Cultura dos Campos
por J. F. de Assis-Brasil
1910

Assoc. do Agricultor
Dr. Dias Martins
1913

Consulta Agrícola
for Albano da Silveira
1913

from Minas Geraes Sec.
de Agricultura

Bibliotheca da Sociedade
Nacional de Agricultura
15, rua 1^a de Março
Rio de Janeiro

About address is along
the side of the society
and location of the
Museu Agrícola

Bahia Mar 12 1914

Today called at Collegio
Antônio Vieira 3 rua
dos Coqueiros. Found Padre
Lamartine, out of town. Met
Padre Foulquier, who inter-
duced me to Padre
Continho, the editor of
"Biotéria". I very much
enjoyed talking to both
these men. The magazine
is printed in Portugal, the
home office is in Sala-
manca, but it is edited
and gotten up here in
Bahia. I believe it is
the best scientific mag-
azine in Brazil. Printed
on good glazed paper and
fully illustrated. Padre
Foulquier is to continue
the papers on "Inseti-
cos do Brasil".

724
Vatapa

get a fowl, cut it in joints, and stew it till tender in one quart of water.

Then have all these ingredients ready to mix with the fowl: Two cloves garlic, 1 lb. of grated bread crumbs, $\frac{1}{4}$ lb. of dried shrimps, pounded in a mortar.

Grate a coco nut, put $\frac{1}{2}$ pint of water on it and let it stand till the fowl is ready, then pour the water off onto the bread crumbs, also the milk from the coconut, add 2 ozs. of pimentas pounded with onion, or less pimentas if not desired hot. Add 4 tablespoons salad oil, 3 of olive oil.

Don't use the

725
milk of the coconut
Stir with a wooden spoon
all the time once all
the ingredients are in the
pan, for it burns quickly.
- Mrs. Velho.

Abacate is prepared with -

1. With kirsch & sugar
2. " milk & sugar
3. " lemon juice & sugar
4. " burnt Cachaça or rum

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Araca do Rio

See opposite page

Bahia March 12 1914

Araca do Rio

From Dr. Fortunato de
Silva place, Cabula,
This looks very much
like *Psidium cattleianum*
var. *lucidum*. The shrub
is 8-10 ft high, upright in
form. Fruits light yellow
in color, round or slightly
oblate, with rather few
but large seeds. The flav-
or is mild, subacid
good tastes like *lucidum*
to me. See photograph.
This is the only thing
I have seen this guava
here it certainly is
not common. The name
is one given to it by
one of the small sons
of Rogasians, the care-
taker.

Bahia Mar. 13 1912

Preparing budwood at Rio
Parrotin ends
Makel 2 batches:

- (1) wrap in oiled paper
then newspaper, then
oiled paper again,
then strong paper.
- (2) wrap in slightly more
newspaper, then oiled paper.

Put on top of trunk in
cabin where they can get
air.

Wire Mr. Dorsett

Sport = have secured of
selecta name sport
OK. sailing today everything
allright.Garcinia #54 in
Garden Bot. Amica

Small ditch

← → 8m/10m tree from road

○ - bud sport tree

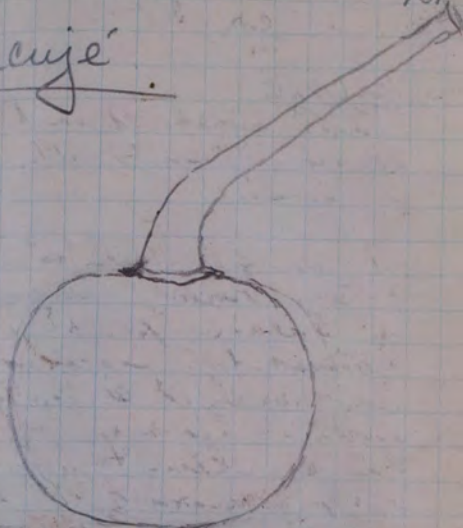
 São Gonçalo

S.S. Aragon Sun. Mar 15 1914

Mucujé

Fruit purchased in Bahia market, Mar. 13, 1914, at 20 reis each.

General form oblate cross section round; length $1\frac{3}{8}$ ins, breadth $1\frac{1}{4}$ ins, base flattened but cavity none. Stem inserted at center of base, woody, 2-3 ins in length, swollen close to fruit, calyx persistent but sepals very small and not prominent; apex flattened; surface smooth becoming loosely wrinkled when fruit is ripe for eating. Color light green to yellowish green with many patches of russet, stem thin, tender, and easily broken; flesh pale brown around seeds, layer $\frac{1}{2}$ inch thick under skin whitish green, aroma not strong but rather unpleasant.

Mucujé

lateral view of fruit nat. size

cross sec.
nat. size

Mucuna contd.

Soft and mushy when fully ripe with a rubbery substance which persists and is very disagreeable, as in the green mangals (a white latex) but here in the ripe fruit it fails to disappear entirely, gives not very abundant flavor somewhat suggesting a ripe cucumber, sweet, not particularly agreeable to one unaccustomed to it and the sticky sap objectionable in the mouth. Seeds numerous, about the size of large guava seeds, confined to space in center of fruit; the seed cavity extending to within 1/4 inch of skin. Season March.

Don't think much of the fruit.

Rio Janeiro, Mon Mar 16. 1933

Called on Mr Wright
Secy of American Embassy.

We discussed the work of the expedition and Mr. Wright made several suggestions which should be presented to Mr. Fairchild when we get home. He asks that any publications re the trip which we may wish to be sent thru the State Dept. to the Embassy here, to be transmitted to the Ministerio da Agricultura. He points out that anything we publish will be of value to the Brazilian Govt. & of credit to the Ministerio as much as it was with our cooperation that we made the trip. He would especially like to see some animal pictures or a report published in the Agr. culture conditions in the interior, mammals

as much of the information as has been published has been misleading. Immigrants is the only thing that are developed in the country.

He asked if we had received courteous treatment at the hands of the officials everywhere. I told him yes, with the exception of our first time in the Alfardoga here, & repeated the incident. He said "I think you pursued the right policy in yielding to his demands to see the boy-gage. When the Gov. is doing so much for you it would not look well to raise a fuss over such a thing. I would soon be removed around & would give the impression that the Americans that they

Rio Janeiro Mar 16 1914⁷³⁵

I was coming out of the front gate of the Beanery with my camera at 12 o'clock the proprietor asked

"Where are you going now?"

To which I replied "To the Jardim Botânico"

"Aren't you afraid to go out in the hot sun?"

No, I am accustomed to it; I have just come from the Rio São Francisco."

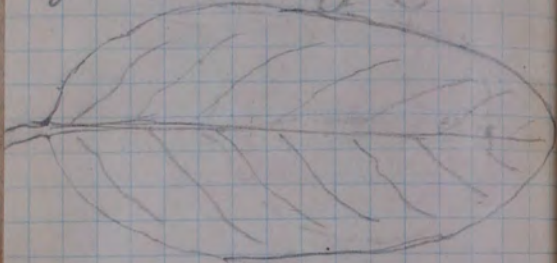
"Ooh! Então pode ir!"

736 Rigganery Mar 16 1914

Jardim Botânico

Rollinia glaucescens

A small tree 15 ft. high
with garden #2474. Appears
to be the *Araticum*,
found in São João del-Rei



name given on label is
"Araticum do Campo"

Phyllocalyx edulis #741

Plant is almost dead, only
about 15 ins high. From the
appearance of the leaf I
think this is the yellow
fruited pitanga which we
saw at the rock of
Miguel de Teive & Orquella.

737

two or three ripe fruits
on it, about the size of
pitanga, but not quite
so oblate, bright yellow
in color + with a strong
flavor not as agreeable
as pitanga.



Monday. This morning was given over to calls on the Consulate & Embassy and doing errands in town. This afternoon I went to the Jardim Botânico, returning to the hotel in time to make 5 natural cyclophotos before dinner.

It is hot here in the middle of the day, and hot in every room (pacing about) in the evening. The early mornings are fine.

I notice there are several less newspapers published than when I was here before. Mr Wright says the Estado de S. Paulo has enabled the Govt to shut up 5 of them.

The Hotel Beau Sejour on Santa Theresa is the nearest approach to home. Jean-Jean Hotel de Bahia which I have

Hemisphere, and it only costs \$8.00 per day for the best the house affords, while the lowest price at the Intercontinental is 12.00, and they usually look on a good many others. Mr English spoken here, however.

I made a journal de Commerce a reference to the fact that in the States near by everyone is a "Colonel" or a "Major" etc. I guess Brazil can't talk on that score. Everyone over 40 yrs old here is either a Doctor or a Colonel.

Hotel Beau Sejour has more pretty girls than the Intercontinental ever could boast. Got acquainted with a Brazilian about my age tonight. Very pleasant Schap

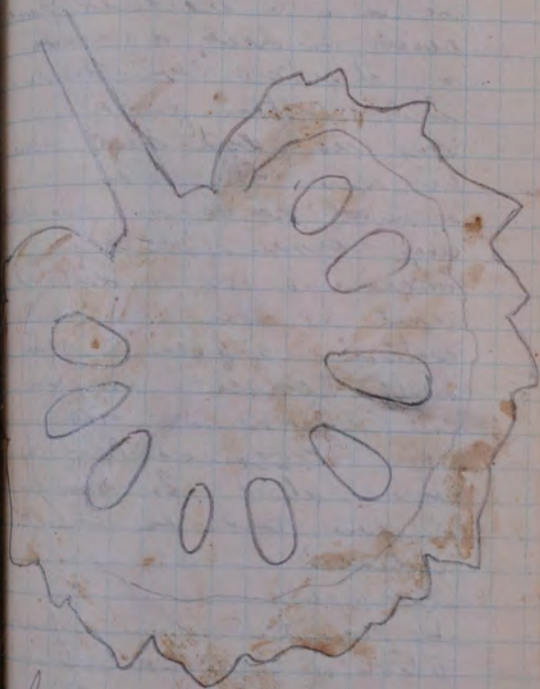
740 Rio Janeiro Mar 16 1944

Annonaceae

I purchased the material in the Mercado Novo about a peck of fruits for 2 \$5.00. The dealer called them *fruta de Conchessa* (but this name properly belongs to a common *Annona*?) He said they came from the interior of Rio state. A fruit I saw on a tree labelled *Rollinia Espirito-santensis* in the Jardim Botânico today looked very similar to these, which leads me to believe this is also a *Rollinia*.

Description

In general form the fruit is normally conical to cordate, but as with nearly all *Annona* it varies enormously; the size is also extremely



long. see. nat. size
a fruit not fully ripe.

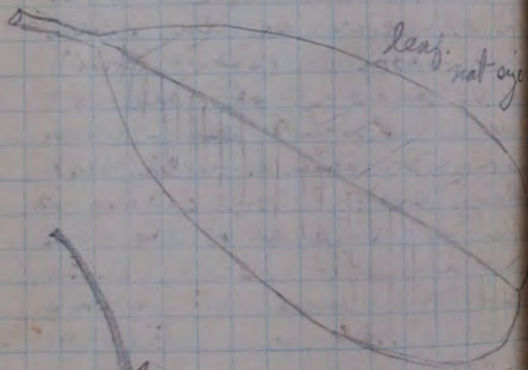
Annonaceae cont'd from 740
specimens measure $3\frac{1}{2}$ to 4
inches in length and $3\frac{1}{2}$ to 4
inches in breadth at arched
point, usually near base
or slightly above longitudinal
center of fruit. The
stem is stout and erect
ed squarely on base in
a shallow to medium
deep, broad, fluted cavity.
base rounded to flattened,
apex broadly pointed to
obtusely. surface covered
with conical protuberances
varying in height. in
some specimens this is
3/4 inch above the general
surface, and are sharply
pointed, in others the
carpellary areas are more
by rounded; the separation
of the carpellary
areas is always well
marked, but the carpels
do not break apart.
color when fully ripe

somewhat darker in the
center of each carpellary
area; and wherever bruised
turning dark brown; skin
fully $\frac{1}{8}$ inch thick, fine-
ly granular, with no
sharp distinction between
it and the flesh, rather
tough and not readily
broken; flesh milk
white in color, aroma
almost none, soft but not
tender and delicate in
texture as in *Cherimolia*;
flavor sweet, but lacking
the character and rather
insipid, not at all distinctive;
quality fair. seeds not
so numerous as in many
Annonaceae, and all lying
toward the outside of the
fruit, very similar in size
and appearance to those
of the *Cherimoya* $5\frac{1}{2}$ in long,
 $5\frac{1}{6}$ in wide, compressed,
dark brown in color. Season
March - ? Receptacle very
large but not separating readily
from pulp. - not well defined.

744 Rio Janeiro, Tues. Mar 17 1914

Sapotaceae

From a tree in the Jar-
din Botânico bearing no
number, standing at edge
of walk next to the circle
of myrtaceous plants in
the Myrtaceae section. The
tree is about 25 feet in height,
open in growth and conspicuously
foliated. Trunk about 6 in
in diameter.



long. seed
of fruit
showing seed

745

The fruit is a small drupe,
ovate-elliptical in general
form. Cross section round,
measuring $\frac{5}{8}$ inch in length
by $\frac{1}{2}$ in breadth; the stem
is about 1 inch long, swollen
near fruit, and adheres to the
fruit when the latter falls
from the tree. The small, 6-par-
tite calyx persistent; base
rounded. Apex rounded to
very broadly pointed, crowned
by the persistent pistil $\frac{1}{8}$ inch
long, surface smooth, glossy,
rich maroon in color; skin
rather thick, tough, almost
leathery; flesh white, semi-trans-
lucent, containing a milky sub-
stance. Soft, juicy; flavor sim-
ilar to Sapota or alain and
very agreeable; seed 1, ellipt-
ical, compressed, $\frac{1}{2}$ in. in length,
 $\frac{1}{4}$ in. in breadth, dark brown
in color, glossy. Season
March.

A good flavored fruit but
small.

746 Rio Janeiro, March 17, 1914

Myrtaceae

A large myrtaceous fruit
from the Jardim Botânico,
probably *Eugenia malac-*
censis. There are several
trees scattered over the
garden, but none labelled.

Leaves elliptical-obovate,
acuminate at apex 13 ins
long, $6\frac{1}{2}$ ins. wide, frequently
longer than this. Vene
depressed above, prominent
below. Color light green.
Tree upright, pyramidal
and summervale, densely
foliated, the specimens here
about 30-35 ft in height.
One of the handsomest
ornamental trees in the
garden.

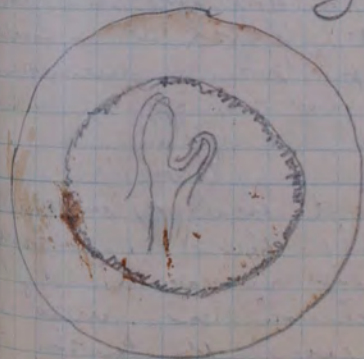
General form oblong-obovate,
cross section very slightly
ribbed; dimensions
length $2\frac{1}{4}$ ins, width
 $1\frac{1}{4}$ ins.

747

long. sec. nat size



cross sec nat size



Myrtaceae cont'd from 746
 inch in length, very stout
 base tapering slightly,
 cavity none to very small,
 shallow, irregular, apex
 broad and flat, calyx
 sepals fleshy, eye almost
 entirely closed, basin (ca-
 tinal) none, surface slightly
 ribbed longitudinally,
 rather glossy, greenish white
 waxy in color, overspread
 with rose red mott
 prominent around base but
 sometimes so general as
 to give the impression of
 a red fruit; skin very
 thin, inseparable from flesh,
 tender; flesh white, snowy,
 crisp, firm, fairly juicy,
 aroma none, flavor
 acid, something like an
 unripe apple, without
 a great deal of insur-
 mability. Seed 1, round
 or nearly so, $1 - 1\frac{1}{8}$ line
 in diameter, fitting
 closely in its cavity.

Internal basin just
 below seed $\frac{5}{8}$ inch broad,
 $\frac{3}{8}$ in. deep, colored rose
 red on surface, opening
 to outside practically closed
 by fleshy sepals of calyx;
 Season March - ?

Chacara of Eickhoff
 Carneiro Leão & Cia

134 Santa Alexandrina
 Take "Rua Santa Alexandria"
 leads on rua d'Assemblea.
 Buy every 20 minutes fare
 to Chacara 300 reis

Fundado na regencia
do Principe Dom João VI
sendo ministro do Reino
D. Fernando José de
Portugal / Marquez
de Aguiar)

Em 13 de Junho de 1861

- Inscription near
gate, in Garden Botânico
of Rio de Janeiro.

Rio Janeiro, Tues. Mar 17 1914. 751

This morning I called at Horti-
cultural to inquire about going
out to their Chapeira to
see our plants. Gondra
was unable to go so I
went out alone, and accom-
panied with Sebastião to
come back the next day
and pick out all our
stuff.

In the afternoon I
called on Mr. H. C. Tucker
at the Y. M. C. A. building,
Rua da Quitanda, and
there he met the officers of
the Y. M. C. A.

Last night was disagree-
ably warm; tonight promises
to be a little better.
The days in town are hot, but
Mr. Tucker says it has been
an unusually cool summer
so far.

752 Rio Janeiro Wed Mar 18 1953

This morning went to the garden Botânico to get photo of *Ravenala* & specimens of *Garcinia cochinchinensis*. The light is fine in the garden about 9:10 a.m. for photography.

This afternoon went out to the *Stortulanha* chaceira to see our plants. Sebastião had them picked out and the ball of soil around the roots wrapped with straw for shipping. The stock looks good and ought to carry well. Later in the pm. called on Lampert & Holt agts. They said to have the plants on board by 10 a.m. on Tuesday. Shall call Monday p.m. for order to receive stuff on board ship etc. They will let it go on deck.

Marimbomba, Fri Mar. 19 - 1953
alt. 25,702 m. from Rio 35,344 km.
left Rio 8 a.m. and here 9 a.m.
first visited the

orange grove of José Maria Soares situated on the RR track about 1 mile from the station, back toward Rio. This grove appears to be about 16-8 acres in extent, and consists of plantings varying from 2 to 8 yrs old, of *in* vigorous & healthy. Practically all of the trees are *pera*. There are some 4 or 5 *selecta* which are in fine condition. The *pera* seem to be greatly preferred. According to the woman who owns the place, the main crop of *pera* is in January, but there is considerable saleable fruit at other seasons. She says the best time for budding is either January or August.

754

in picking bad wood
she takes only wood
from which the leaves
have dropped, leaving
what she calls *stubs*
dwarf, - hard eggs. The
fucker branches about
1/2 inch in diameter or
little larger, and says
to always take branches
which are in fruit for if
they are not bearing the
resistant trees will not
bear.

The para trees are
loaded with fruit almost
full grown, or at least
3/4 grown in most cases.
They are much heavier
bearers than *selicta*
which is probably one
reason why they are
favored. The fruit on
the *selicta* trees also
appeared to be 3/4 grown
or more.

Mxambomba Mar 19 194 755

Grove of Cary Augusto Enriques,
on high Dr. Trompelt.
Situating on a steep hill-
side, the soil of rather light
color, but apparently very
good, a light clay loam.
Enriques is a Portuguese
full of energy and intelligent.
He is going in for orange cul-
ture to make some money
out of it. He says he doesn't
know of anything that para
batter here. His grove is
on 5 acres in extent and
runs all the way from
young trees budded last
August to 40 yrs old trees.
Everything is *para*. His 4
yr old trees are as big as
most at 6 yrs, all budded.
He uses *Ida terra* stuff -
says it is the only thing to
use. He has in nursery
now some trees budded 15-
August last on small stocks
now from 3 to 6 ft high.
Some of the same budding,

or larger stocks, which
has been planted to the
field and easily topped
about 4-5 ft high, and as
big as 2 yr old trees in Cal.
The 3 yr old trees are
loaded with fruit. He
says Pera always bears
heavily, 500 fruits being
only a medium sized crop
for one of the 2 yr old
trees and he gets 5-7000
per 100 for the fruit.

Some of the trees are so
heavily laden they have
to be propped with
bamboo poles.

I have never seen cleaner
or healthier trees. The
casual examination
which I made failed to
show any scale insects
or any gum disease.
Mottled leaf is very
scarce. The fruits are
free from smut, smooth &
clean.

The ground is not

cultivated deeply, but
the surface is hoed to
keep down weeds. He
says the trees need no
fertilizers. In parts of
the grove not recently
cleared there was a
light growth of some
sort of Bermuda grass.
Drains have been dug
to carry the water off
without running down the
hill & washing out the
trees.

The trees bloom in Aug-
ust & ripen the crop a year
from the following January.
The crop of almost fully
grown fruits on the trees now
is not the fully ripe
until next Jan, although
some of them can begin
to be picked in a month
or two & will be eatable
at ripening time in Jan. There
are two crops on the tree
the crop which is ripening and
the new crop from the

flowers of the previous
August.

He says budding is
done in August. He
uses the same system
of budding and about
the same size of wood
as Col. Decca of Bahia.

He offered to send up
budwood at any time.
I think he is intelligent
enough to do anything of
the kind for us. I of

The photos are from
the habit of the trees
and their size. They are
planted about 12 feet
apart. I promised to send
him 2 or 3 of the best
photos.

Altogether the most intelli-
gent grower I have
met this side of Rio

Mapambomba Mar 19 1914

from the RR track, and a
hill not far from town. I
saw about 5 or 6 small
orange groves, presumably of
to be 8 acres each prob-
ably 2 or 3 acres each being
an average. The two which
I went into were practically
all *laranja da pera*, and
very few other small plan-
tations which I saw from
the road were all *Berão*.
None of the fruit is ripe now
though. I saw small boys
at some of the stations
rather towards Rio, with
fruit for sale. It looked
green & no doubt was.
The main crop is said
to be in January, although
they begin to pick quite
a while before that, as
evidenced by the fact
that the fruit was
abundant in the
market when we landed.

here the 21st October last
Enriquez says you can
begin to pick the
ripest fruits very soon
now.

The soil at Maxam
brala is a light clay
loam, grayish in color
when dry.

The old groves, which
I did not have time
to visit, appeared rather
irregular in plantings
the trees are all planted
too close together.

Pera is a extremely
heavy bearer, while Sitaka
seems here to be the
opposite. I think the
may be the reason the
growers are planting
Pera.

Janaro, Fri. Mar. 19 1914 ⁷⁶¹

Placourtia Ramontchi
specimens secured in
the garden Botanico



round to slightly oblate,
cross section regularly
round, length $3\frac{1}{4}$ - $\frac{1}{8}$ inch,
width same, stem $\frac{1}{4}$ to
 $\frac{1}{2}$ inch long, slender.

base rounded, flattened
very slightly at insertion
of stem. cavity none; apex
rounded to slightly flat
tend. crowned by three
minute pistil less than
not in length. surface
smooth, rather dull in
appearance, color, deep
maroon, skin thin but
tough, leathery, and ad-
hering rather closely to the
flesh; flesh amber colored
strikingly similar to the
flesh of certain plums;
firm, meaty, moderately
juicy, aroma very slight
flavor somewhat resembling
that of a fresh fruit
or plum. subacid, agree-
able; quality fairly good.
perfect seeds 3 to 8, com-
monly 5 or 6, radiating
from the center of the
fruit, oval or reniform,
compressed, about $\frac{3}{16}$ inch
in length, brownish yellow

the pulp. Season here
March - 2. They are
just beginning to ripen
at the Jardim Botânico.
The fruits are produced
thickly along the smaller
branches, oftentimes sev-
eral in a cluster.

Introduction of *Annona*
squarrosa into Brazil.

becoming a quintal, for
5 de Fev. 1914 (Ann. I Vol. IX)
K. says.

"A 'Fructa do Corde'
foi introduzida na Bahia
em 1626, pelo governador
Corde de Miranda em cuja
honra elle foi denominado
no Brazil."

Rio Janeiro Mar 19 1914

I should get

"Notas sobre a natureza
e distribuição geográfica
das Árvores Frutíferas do
Para" pelo Dr. J. Huber
Para 1904.

Should get from editor of
Chacras e Quintais the
address of Sr. Weber in
Rio Grande do Sul, who
grows guavas.

Fruta de Conde

much smaller here at
Rio than at Bahia. They
are abundant in the
markets, and very attractive
here in appearance being
yellowish in color, than
I have seen them

Netheroy, Rio Mar 20-14

Location of
subject

"Selecta" orange
tree in grove
of João Elias
Estreos na
110 rua São
Gonzalo.

Oranges
Selecta Netheroy

Ditch

Rivers

Motheroy, Fri. Mar. 20 19

To Chacara of João Elias
Esteres (Viúva, I think)
#110 rua São Gonçalo.
Take the S. Gonçalo car
at the Ferry landing ride
400 reis worth.

I arrived at the Chacara
about 9 a.m. The negro
gardener who was there
when Hamel, Dorsett & I went
over in Oct. remembered me
and the Madam told me
to make myself at home.
They are good people - will
give one anything on the
place.

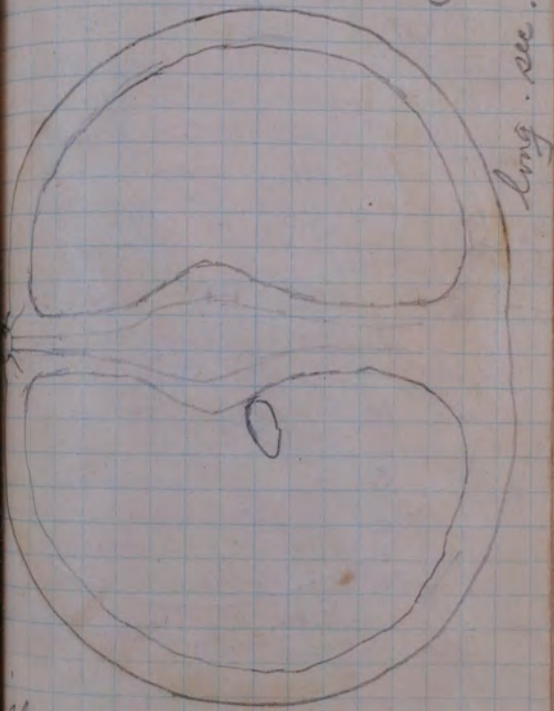
The Selecta orange in
many cases are practically
fully grown, a few ripe
enough to eat, and quite
a lot of half grown ones
that will ripen late. The
gardener says the main
crop will ripen about
June.

The orange grove is about
equally divided, I think,
between Selecta and
Natal, but there is no
system to the planting
and the trees do not
compare with those I saw
at Mapambomba yester-
day, perhaps for the reason
because they may be
considerably older. The
wood is scraggly.

I looked over most of
the Selecta trees which
were carrying fruits of mature
age and picked out 4 which
were producing novel and
sports. I think if one had
but open fruits to find
sports of navel trees would
have been plenty of them.
I did not find any large
branches producing navel
sports, however, but
found these fruits only
at the ends of small
fruit spurs, and con-
sequently could not cut

any large budwood as I
 did not take any, except
 that just above the fruit
 for other small spurs from
 the same limb produced
 typical *Selecta* fruits. There
 seemed to be no well de-
 fined bud sport limbs, but
 fruits with navels would
 be scattered amongst the
 others on the tree. I found
 2 on #1, 2 on #2, 2 on #3,
 and 3 on #4. I noticed
 other fruits swollen at the
 apex which probably indi-
 cated internal navels. There
 were few protruding navels,
 no large ones such as are
 frequently found on the
 Bahia trees. Fruits without
 navels are nearly always
 oblate, while some of those
 with navels are quite round,
 thus losing one of the
 principal *Selecta* charac-
 ters.

769
 Rio de Janeiro Fri. Mar 20-14
Laranga Selecta
 fruit bought in Mercado
 Novo at 800 reis the dozen.



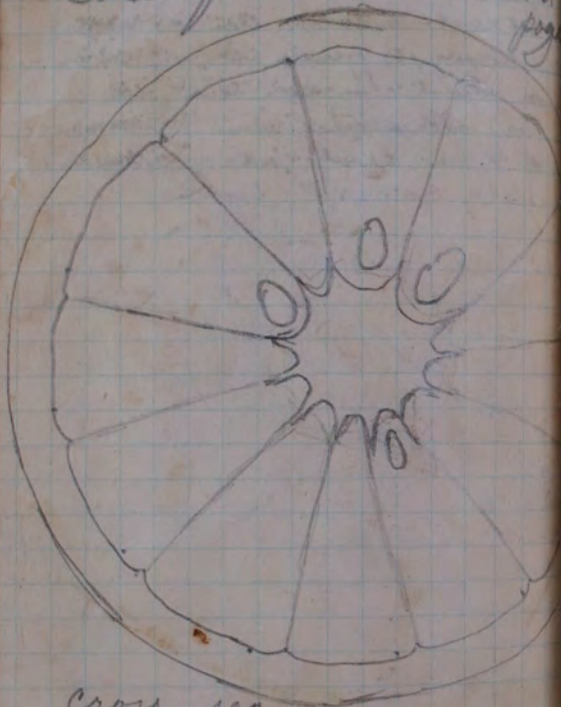
long sec.

The fruit showed absolutely
 no sign of a navel. (over)

770

Laranga Selecta

Same fruit shown on last page

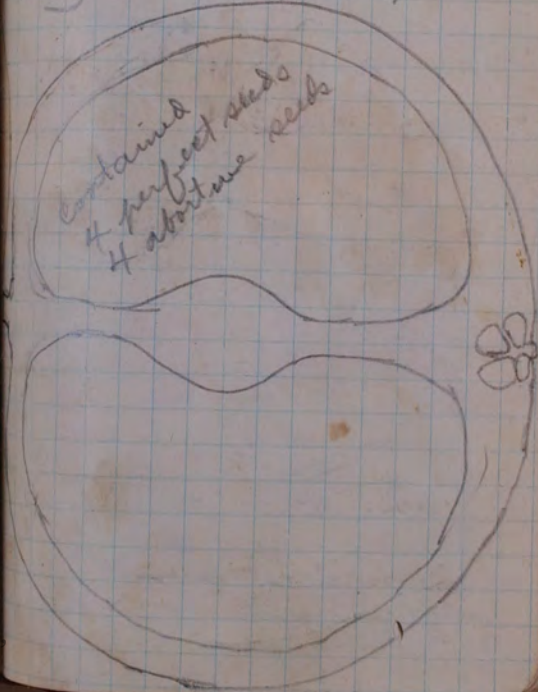


Cross sec.

12 perfect seeds
7 rudimentary ones

Rio de Janeiro Mar 30 1914⁷⁷¹

Laranga Selecta with rudimentary navel from Esteroes place, Netherland, exterior of fruit photographed as typical *Selecta* type. This illustrates the beginning of navel development. Exterior navel not noticeable.

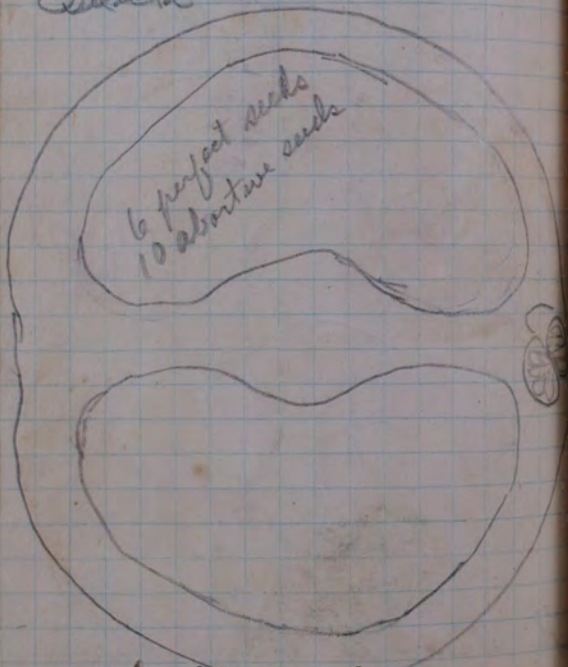


contained
4 perfect seeds
4 abortive seeds

772 Rio Janeiro Mar 20 1914

Laranga Selecta

Another fruit from the
Eutres glove. Externally
showed no indication of a
navel & I picked it as a
good specimen of ordinary
Selecta

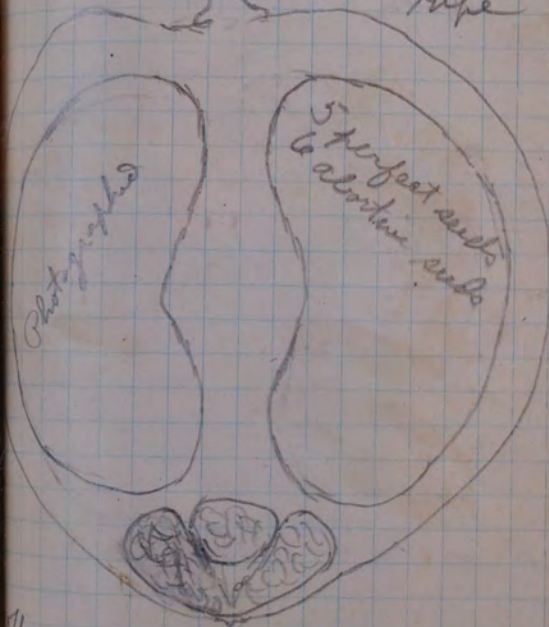


773 Rio Janeiro Mar 20 1914

Laranga Selecta navel
Bry Sport #1

In location of the navel
plan p. 765.

Fruit almost
ripe



The navel is entirely closed.
we be noticed that

the fruit is entirely changed in form, more nearly approaching the Bahia than the Selecta. The swollen apex is peculiar. The fruit when fresh was not fully ripe. Navel $1/8$ inches in diameter.

Rio Janeiro Mar 30 1914 ⁷⁷⁵

Orange Selecta Navel
Budsport #2.
See plan on p. 765

The fruit is only about half grown.



Navel opening between $1/8$ and $3/16$ inch in diam. Navel $3/8$ inch in diam

777 Rio Janeiro Mar. 20 1914

Laranga Selecta Navee Bud Sport #3. See plan p. 765

A type with small protruding navel. Length of protruding portion $\frac{1}{8}$ inch, opening $\frac{1}{8}$ inch in diameter. Interior navel $\frac{1}{16}$ inch in diam.



777 Rio Janeiro Mar. 20 1914

Laranga Selecta Navee Bud Sport #4. See plan p. 765

Another example of a well developed interior navel, with no opening to exterior.



navel diam $\frac{3}{4}$ inch. Not open to surface

Selecta Orange

After returning from
Niteroy today I went down
town and visited the Mar-
cado Novo. I found quan-
tities of Selecta orange
on sale here, at 500 to
1000 reis the dozen for good
large specimens, and on
examining the fruit as
they lay in large baskets I
came across a number of
them with navels, - that is
navels externally visible. In
most cases the navel
openings were small, not
over $\frac{1}{8}$ inch in diameter, but
there were a few larger
than this, with a yellowish
characteristic wrinkled
appearance of the Bahia navel.
Some others were swollen
at the apex, indicating
an internal navel.
On the whole the navel
spots were much com-

at first believed, and
seemed to be much more
abundant in some
batches of fruit than in
others. In most batches
I saw no navels at all,
on a hasty examination;
in a few other baskets
of fruit I should say
fully 5% or probably
more showed distinct
indications of navel
spotting.

This leads to the belief
that the production of
navel fruits must be a
common occurrence with
Selecta at least on
a good many trees. I
have not up to the present
however found one of these
navel fruits entirely sim-
ilar to the Bahia
strain.

Rio Janeiro Mar 21 1914

This afternoon I made a trip to Mattheroy, took the São Gonçalo train, & went out nearly as far as the Esteres place. Then walked back the train line with my camera.

Oranges

all along this road there are small plantations of orange trees, the larger part of which are I think, Selecta. These seem to be a good many Natal and also quite a few tangenines, with a few laranja da China. Natal looks to me as though it might be Persia under another name. Its fruiting habits are the same, the fruit is now about the same stage of development as the Pera at Masambombani.

The Selectas are now beginning to be picked, and I met several men coming home from town with 2 empty cassias or their cangalhs.

The groves if they can be called such, are in most cases small, - from 8 or 10 trees to $\frac{1}{2}$ an acre or even an acre and nearly all are irregularly planted, & the trees are entirely too close together. Judging from appearance, the most of them get no care and I never saw such stunted and small trees of mature age. In nearly all groves the grass & weeds are knee high and there is much dead wood on the trees. These small plantings around the houses are very abundant along São Gonçalo, and

I noticed one or two
new plantations with
trees not over a year
old, set in rows and
looking much neater than
the old ones.

Bud Sports

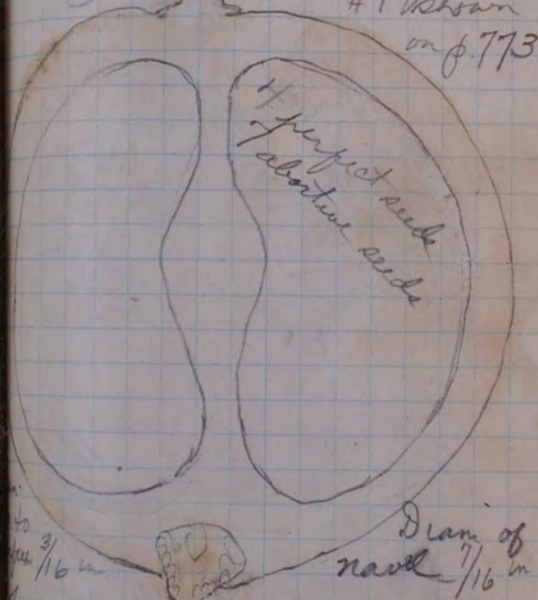
I went over several
Selecta trees in the
hope of finding fruits
with novels, but found
none. I did not have
time to look at more than
8 or 10 trees, and there were
not many fruits on them.

Tangerine

I never saw the trees
here as heavily as they
do here in São Gonçalo, although
they are, generally, only about
6-7 ft high, and arching
leaves. The fruit appears
about 2/3 grown as a
little more than half of

São Gonçalo Mar 22 1914
Orange Selecta Navel Bud
Sport #1.

Same tree on Esteroes place,
Metheny, which produced fruit
#1 shown
on p. 773



fruit not photographed.
Endwood included under
#1.

Janaro Mar. 22 1914 780
Crang. Selecta Navel Bud
 #2.
 from tree on Estero place.



specimen, wh produced fruit
 shown on p. 775. This
 specimen not photographed
 but only about half grown.
 and wood included in #
 2 lot.

Diam. of navel $\frac{7}{16}$ inch.
 " " opening $\frac{7}{16}$ inch

Rio Janeiro Mar 22 1914
Laranga Selecta Navel
 Bud Sport #3.



Fruit from the tree on *Esteres* place, Neckerby, wh produced fruit shown on p. 776. Nearly ripe, on side injured by fungus. Bud sport #3, lot 1, not photographed.

Rio Janeiro Mar 22 1914
Laranga Selecta Navel Bud Sport #4.

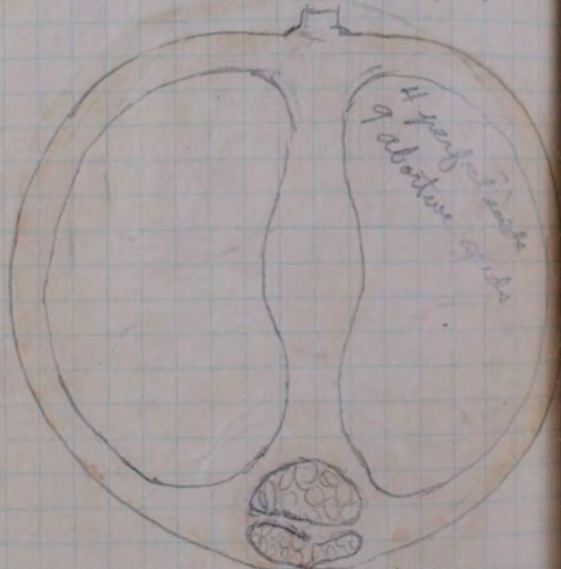
From tree on *Esteres* place, Neckerby, wh produced fruit shown on p. 777.



Diameter of navel $1\frac{1}{4}$ inches. Navel opening entirely closed but practically ripe. Not photographed. Budwood included in #4 lot.

788

Rio Janeiro Mar. 22. 1914

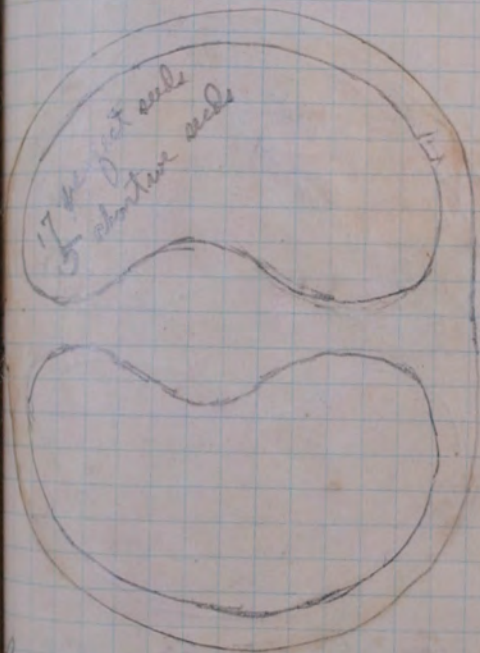
Laranja Selecta Navel Bud
Sport # 4.From tree on Esteres place,
Nethery, which produced fruit
shown on pp. 777 and 787.Diam. of navel $\frac{5}{8}$ inch

Not open to surface.

This fruit not photographed
and was included in [unclear]

789

Rio Janeiro Mar. 22 1914

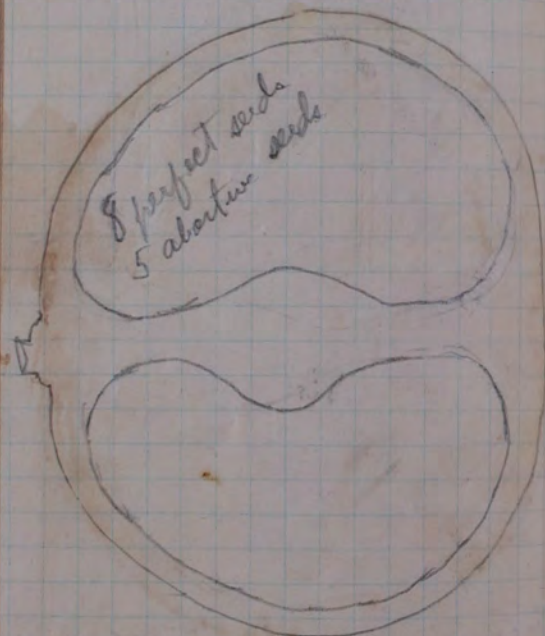
Normal Laranja Selecta
purchased in Mercado
Novo Mar 30.

ripe fruit. Not photographed

790

Rio Janeiro Mar 22 1914

Laranja Selecta, purchased in Mercado Novo Mar. 22

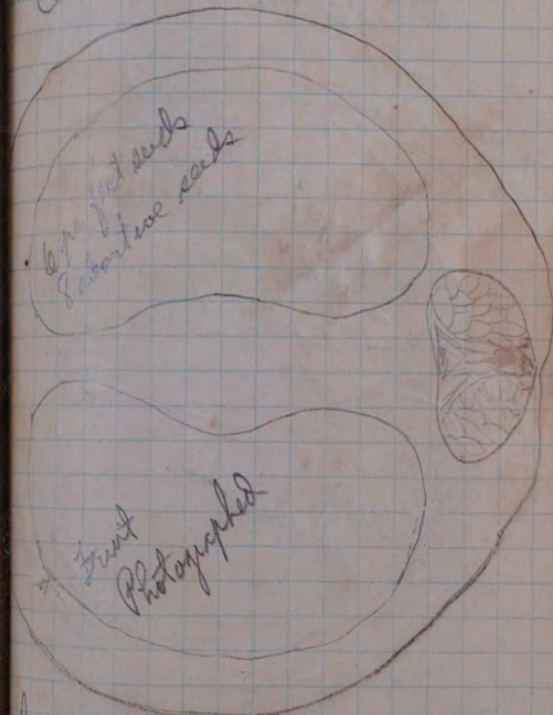


Ripe fruit. Not photographed.

791

Rio de Janeiro Mar 23 1914

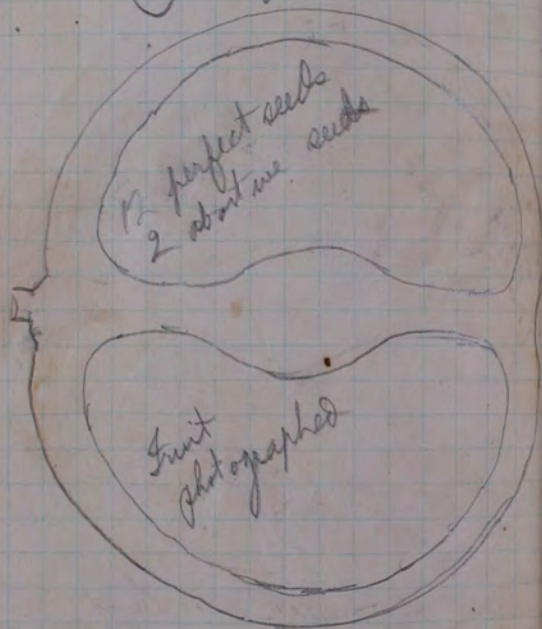
Laranja Selecta from Market with internal navel

Diam of navel $1\frac{1}{16}$ ins.
Not open to surface

792

Rio Janeiro Mar 23 1914

Laraja Selecta, from Market
 Normal fruit, with no
 vestige of a navel



Rather a small fruit

793

Rio Janeiro Mar 23 1914

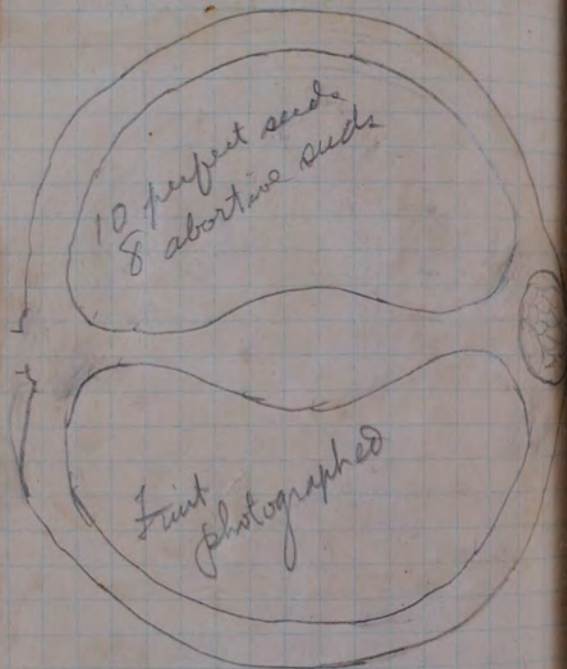
Laraja Selecta from Market
 with well developed
 navel, protruding.



Diam. of navel $\frac{15}{16}$ inch
 " opening $\frac{1}{16}$ inch.

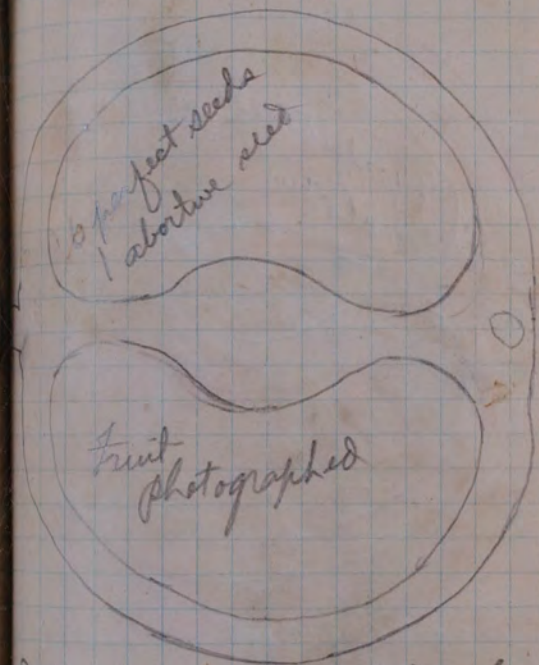
794

Rio Janeiro Mar 23 1945

Laranga Selecta from Market
with internal navel

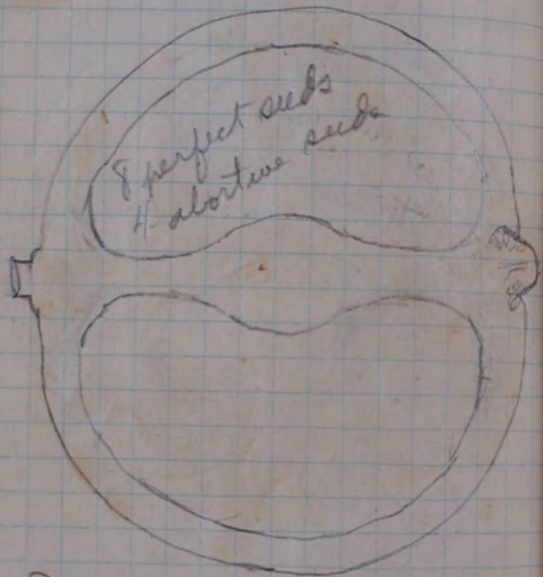
Diam. of navel $1\frac{1}{16}$ inch
Not open to surface

Rio Janeiro Mar 23 1945

Laranga Selecta from Market
Nearly normal - extremely
small rudimentary navel

Diam. of navel $\frac{1}{8}$ inch

796 Rio Janeiro Mar 23 1914
Laranja Selecta from Market
 with small protruding navel



Diam. of navel opening $\frac{5}{16}$ in.

797 Rio Janeiro Mar 24 1914
Laranja Selecta from Market
 with small internal navel



Diam. of navel $\frac{7}{16}$ inch
 Not open to surface

798 Rio Janeiro Mar 24 1914

Laranga Selecta from market
with large internal navel



Diam of navel $\frac{7}{8}$ inch
not open to surface

799 Rio Janeiro Mar 24 1914

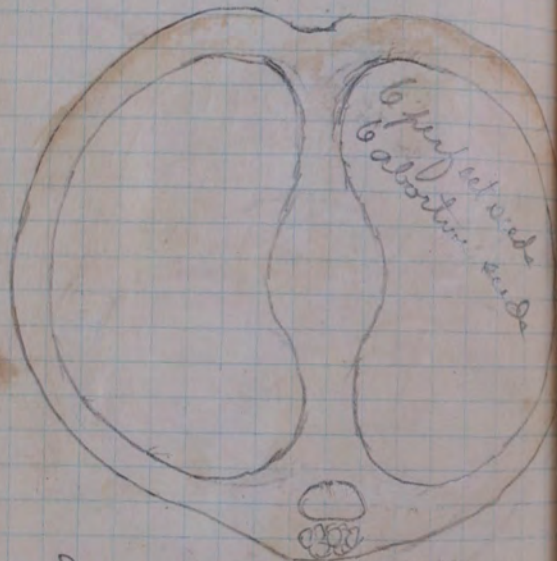
Laranga Selecta from market
with large internal navel



Navel diam $\frac{7}{8}$ inch
not open to surface

800

Rio Janeiro Mar 24 1914

Laranga Selecta from Market
with small internal navel

Diam. of navel $\frac{5}{16}$ inch
Not open to surface

801

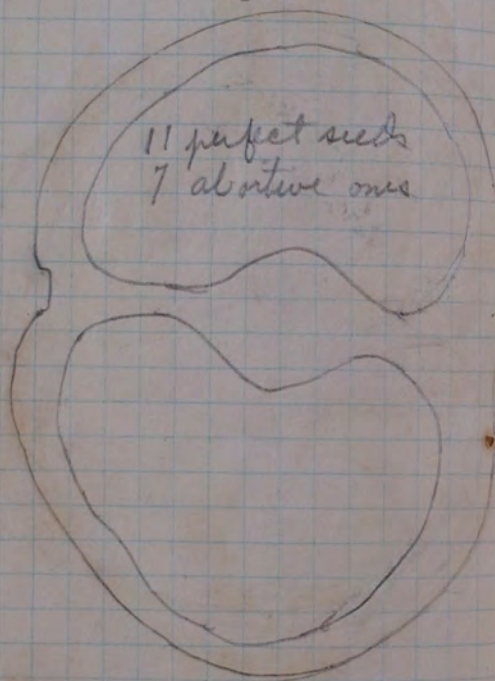
Rio Janeiro Mar 24 1914

Laranga Selecta from Market
normal fruit

No vestiges of a navel

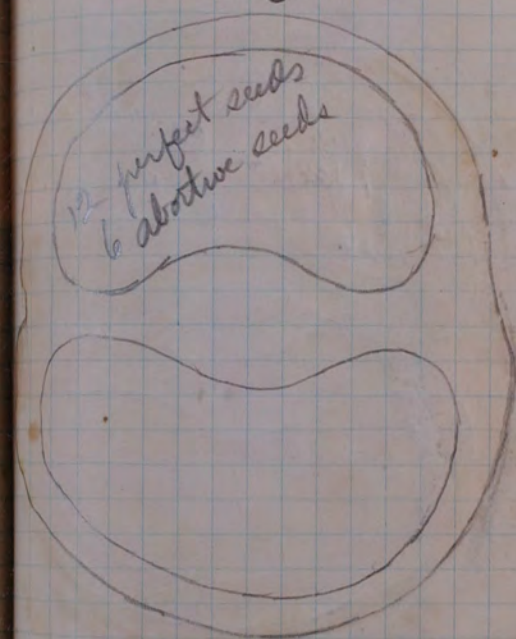
802

Rio Janeiro Mar 24 1914

Laranga Selecta from market
normal type

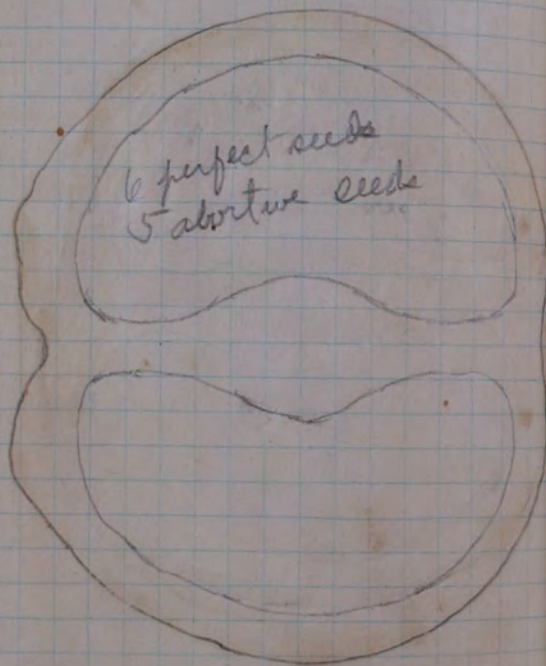
803

Rio Janeiro Mar 24 1914

Laranga Selecta from Market
Normal type

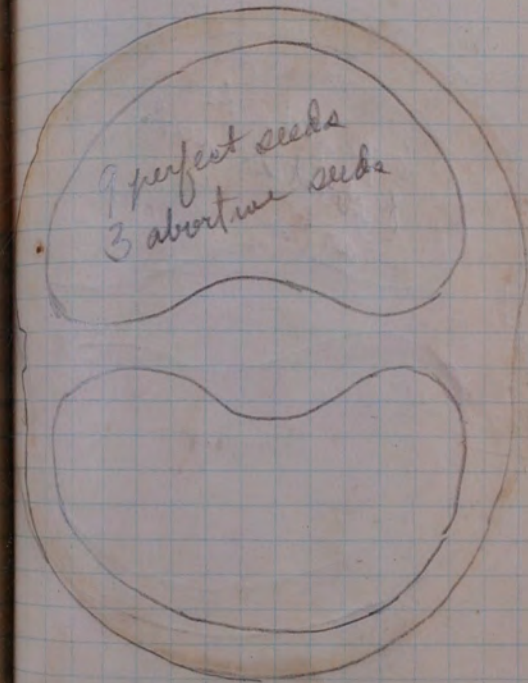
804

Rio Janeiro Mar 24 1914
Laranga Selecta from Market
 Normal type



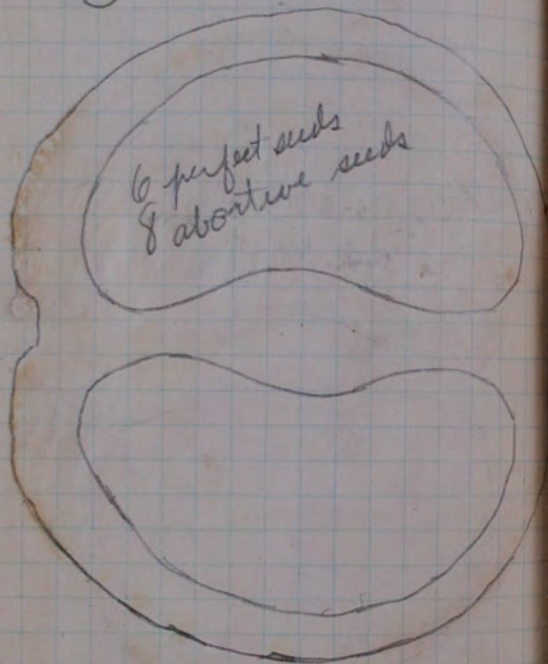
805

Rio Janeiro Mar 23 1914
Laranga Selecta from Market
 Normal type



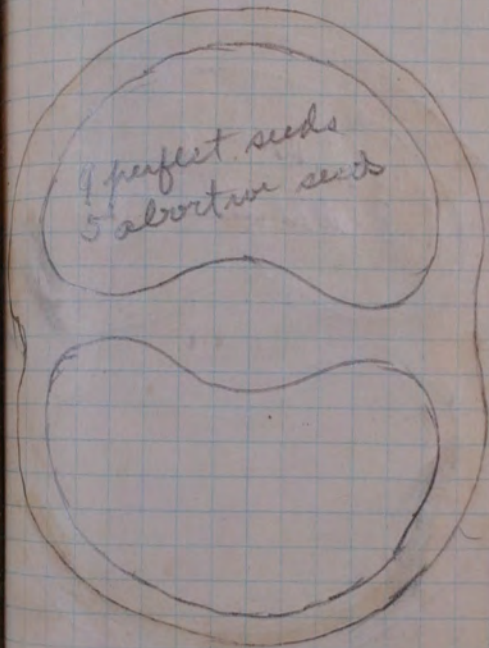
806

Rio Janeiro Mar 24 1914

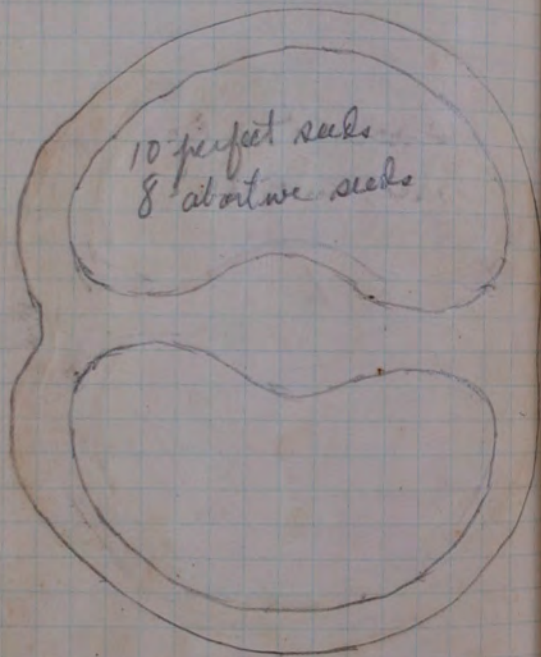
Laranja Selecta from Market
Normal type

807

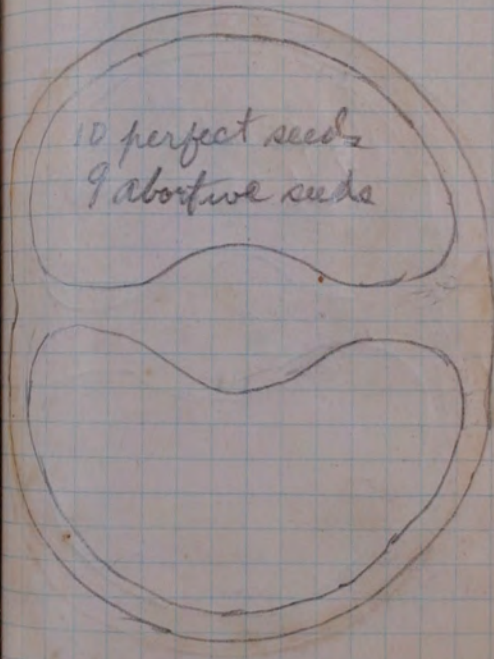
Rio Janeiro Mar 23 1914

Laranja Selecta from Market
Normal type

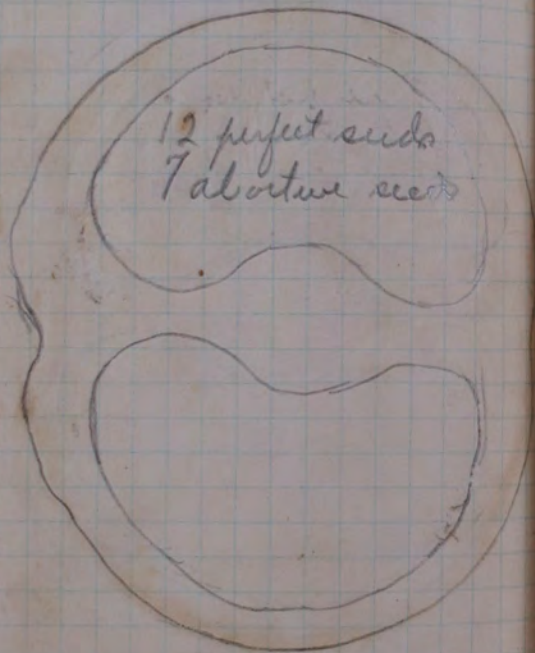
808
Rio Janeiro Mar. 23 1914
Laranja Selesta from Market
Normal type



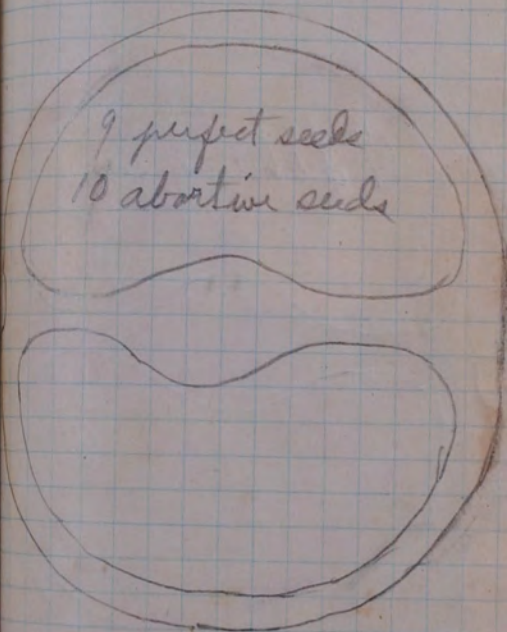
809
Rio Janeiro Mar. 23 1914
Laranja Selesta from Market
Normal type



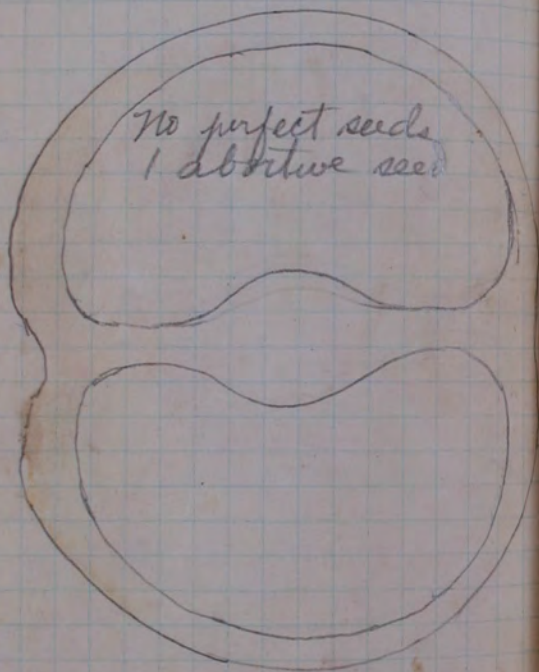
⁸¹⁰
Rio Janeiro Mar 23 1914
Laranja Selecta from Market
Normal type



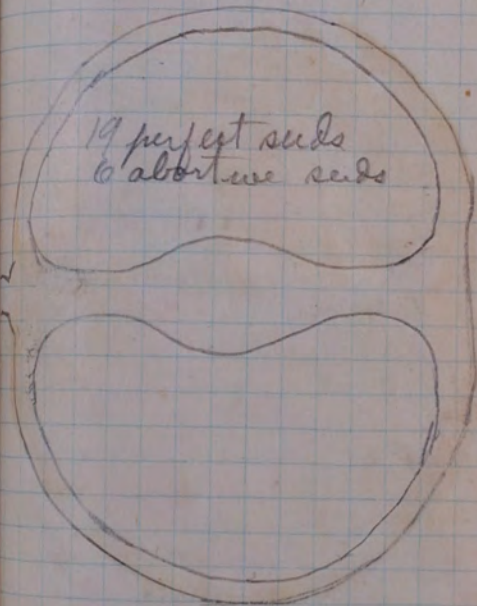
⁸¹¹
Rio Janeiro Mar 23 1914
Laranja Selecta from Market
Normal type



812
Rio Janeiro Mar 23 1914
Laranja Selecta from Market
Normal type



813
Rio Janeiro Mar 23 1914
Laranja Selecta from Market
Normal type



814
Photographic Record

Pack I 5x7 films.

1. Rio de Janeiro, Mar 16.
Close view of fruiting branches
of *Eugenia malaccensis* (?)
to show fruiting habit. Stop
64 time $\frac{3}{4}$ sec. bot sun.

2. Rio Janeiro Mar 16
Tree of *Eugenia malaccensis*
in garden Botânico. Stop
128 time 2 sec. bot sun

3. Rio Janeiro Mar 16
same as last, stop 32, $\frac{1}{2}$ sec

4. Rio Janeiro Mar 16
Statue in garden Botânico
first one in Brazil stop
128, time 5 sec

5x6 pulled out with 4

7. Rio Janeiro March 16
Ravenala in garden

815

8. Rio Janeiro Mar 16
Juncta de Condessa
(*Calluna* sp?) nat. size
stop 256 time 18 $\frac{1}{2}$

9. Rio Janeiro Mar 16
same as last, but
long sec. of fruit
stop 256 time 16 sec

10. Rio Janeiro Mar 16
Eugenia malaccensis,
fruiting branch, nat size
stop 256 time 17 sec

11. Rio Janeiro Mar 16
Sagittaceous fruit from
Botanic Garden, nat size
stop 256, time 18 sec, 5 ft m
nat size

~~2. Rio Janeiro Mar 16
Carabida fruiting
branch nat size
stop 256 time 18 sec.~~

Pack II

1. Rio Janeiro Mar 15
Ravenala madagascariensis
 by pond in Jardim
 Botânico, Stop 256, time
 3/4 sec 9 a.m. but see

2. Rio Janeiro Mar 15
 Fruit cluster of *Copa*
 Stop 256, time 22 sec 3/4 sec
 net size

3. Rio Janeiro Mar 15
Fructa da Condessa, not
 size. Stop 256 time 22 sec
 6/8 in last sun

4. Rio Janeiro Mar 15
 Long sec. of *Fructa da*
Condessa, not size. Stop
 256, time 22 sec 4/8 in

5x6 pulled out with 4

1. Rio Janeiro Mar 18
Cazambala, fruiting br.
 not size. Stop 256, time
 30 sec 4.15 pm cloudy.

2. Rio Janeiro Mar 18
Plate of Eugenia malac.
 genus not size stop 256,
 time 25. 4.20 cloudy.

pressed with 8.

3. Rio Janeiro Mar 18
Eugenia malaccensis not size,
 3 fruits 1 cut open. Stop 256
 time 23 sec 4.30 pm

1. Rio Janeiro Mar 18
Hotel Bean Sepur.
 stop 16, time 2 sec. 4.30 pm

2. Rio Janeiro Mar 18
 View over Rio from
 Hotel Bean Sepur. Stop
 64, time 1 sec.

Pack III

1. Maxambomba Mar 19
6 yr old Pera orange tree
loaded with fruit. Grove
of Jose Maria Corles

2. Maxambomba Mar 19
Close view of fruit
on last.

3. Maxambomba Mar 19
View in 6 yr old grove
of Pera orange of Jose
Maria Corles place.

4. Maxambomba Mar 19
Selecta orange tree
3 yrs old, grove of Jose
Maria Corles.

5. Maxambomba Mar 19
Fruit on Selecta tree
close view, grove of
Jose Maria Corles

6. Maxambomba Mar 19
View down rows in
2 yr Pera grove, Jose
Maria Corles place.

8. Maxambomba Mar 19⁸¹⁹
3 yr old Pera tree
loaded with fruit, grove
of Jose Maria Corles

9. Maxambomba Mar 19
View thru orange grove
looking toward house
grove of Jose Maria Corles

10. Maxambomba Mar 19
Row of 4 1/2 yr old
Pera oranges in fruit, grove
of Jose Maria Corles

11. Maxambomba Mar 19
Looking down row in
6 yr old Pera grove
Jose Maria Corles place.

12. Maxambomba Mar 19
View over part of Jose
Maria Corles property
house. Budwood taken
from part of grove shown.

Pack IV

1. Maxambomba Mar 19
View over grove on hillside,
looking down from upper corner
Cigar Augusto Enriquez place.
2. Maxambomba Mar 19
pulled out with #1
3. Maxambomba Mar 19
View of young plantings
laranga down there to be
grafted in August to Pera
orange grove in background
Cigar Augusto Enriquez place.
- 4, 5 & 6 pulled out with 3
7. Maxambomba Mar 19
Heavily laden Pera
orange tree, in grove
of Cigar Augusto
Enriquez, 4 yrs old

8. Maxambomba Mar 19
View in young orchard
trees budded last August
on good sized terra
stock. Cigar Augusto
Enriquez grove.
9. Maxambomba Mar 19
View in 4 yr old section
of grove. Cigar Augusto
Enriquez place.
10. Maxambomba Mar 19
Another view in a
4 yr old section of orange
grove. Cigar Augusto
Enriquez place.
11. Maxambomba Mar 19
Rubs of Pera inserted
on da terra stock Aug.
15 last. in nursery row.
Cigar Augusto Enriquez pl.
12. Maxambomba Mar 19
~~Jose Maria Correa grove
Perae taken from the
train on way back to Rio~~

Pack V

1. Netheroy Mar 20 1914
 general view down ditch
 thru orange grove of
 João Elias Esteres near
 São gonçalo #110. Both
 Natal & Selecta trees
 are shown.

2. Netheroy Mar 20
 Selecta orange tree #4
 on which budspouts were
 found in grove of
 João Elias Esteres

3. Netheroy Mar 20
 close view under
 branches of Selecta
 tree #4, showing
 fruiting kalit Esteres

4. Netheroy Mar 20
 close view of branches

on Natal orange tree, to
 show prolific kalit &
 form of fruit. The fruit
 is immature. Esteres pl.

5. Netheroy, Mar 20 1914
 Selecta tree #2, on
 which budspouts were found
 Esteres pl.

6. Rio Janeiro Mar 20 1914
 Typical Selecta orange,
 nat size, from Esteres pl.
 Sep 25/6, time 20 sec.

7. Rio Janeiro Mar 20
 Budspout #1, entire fruit
 nat size. Sep 25/6, time
 20 (3) sec.

8. Rio Janeiro Mar 20
 Budspout #1, long.
 sec. nat size showing
 internal navel. time
 20 sec, Sep 25/6

9. Rio Janeiro Mar 30
 Bud sport #2. nat. size
 ✓ Stk 256 time 20 sec.

10. Rio Janeiro Mar 30
 Bud sport #2. long. sec.
 ✓ nat size. showing rudimentary navel.

11. Rio Janeiro Mar 30
 ✓ Bud sport #3, showing
 protruding navel. Stk 256
 time 24 sec.

12. Rio Janeiro Mar 30
 ✓ Bud sport #3. long. sec.
 nat size. Showing
 rudimentary internal
 navel. Stk 256 time 24 sec.

Pack VI

1. Rio Janeiro Mar 30 1914
 Bud sport #4, showing
 swelling at apex nat size
 Stk 256, time 24 sec.

2. Rio Janeiro Mar 30
 Bud sport #4, long sec.
 nat size, showing internal
 navel. Stk 256
 time 24 sec.

3. Neithery Mar 21st
 Tangerine tree, heavily
 laden with fruit, in
 a grove on São Gonzalo

4. Neithery Mar 21
 General view in orchard
 of Silectas, man with
 machado clearing grove

576. pulled out

7. Netheroy Mar 21
 Natal sprout from
 old stump, in fruit.
 In grove on Sao Gonçalo

8. Rio Janeiro Mar 23 1914
 Laranga selecta from
 market, with nance. Stop
 256 time 20 sec. 9:30 am
 nat. size

9. Rio Janeiro Mar 23
 Laranga selecta from
 market, with a minute
 rudimentary nance - almost
 none at all. nat. size
 Stop 256 time 20 sec.

10. Rio Janeiro Mar 23
 Laranga selecta from
 market normal type
 without nance. nat. size
 Stop 256 time 30 sec

11. Rio Janeiro Mar 23
 Laranga selecta from
 market large coarse

827
 internal nance. nat size.
 Stop 256 time 20 sec.

12. Rio Janeiro Mar 23
 Laranga selecta from
 market with good
 sized internal nance.
 nat size. Stop 256, time
 20 sec.

Back VII

828

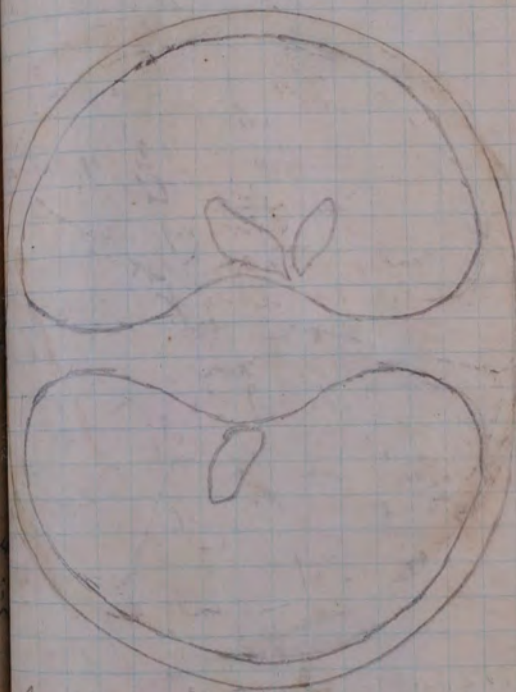
829

Rio de Janeiro Mar 2

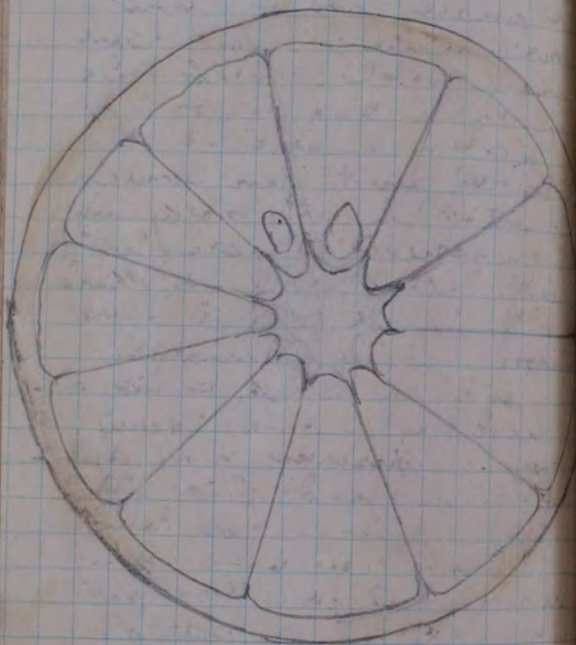
Laranja Selecta

Following are drawings and a pomological description of this fruit taken from specimens chosen as being as typical as possible of those now seen in the market and not taking into consideration, of course, changes in the form of the fruit due to the presence of a more or less well developed navel.

The fruit as here described is the typical normal Laranja Selecta. The color, I think, becomes brighter later on, as noted; it is early in the season now, and like the Bahia oranges the fruits do not color up until they have been on the tree a long time.

Laranja Selecta, contd

Long section of the fruit, natural size.

Laranga Selecta, cont'd

Cross section of fruit
natural size

Laranga Selecta cont'd

General form roundish
oblate; cross section
regularly round; size
medium large, good spec-
imens being 3 to $3\frac{1}{4}$ inches
in length and $3\frac{1}{2}$ to $3\frac{3}{4}$
inches in diameter at the
broadest point; stem sometimes
inserted slightly obliquely;
base usually tapering very
little, flattened for a distance
of $\frac{1}{2}$ to $\frac{3}{4}$ inch from stem inser-
tion. Sometimes slightly
“puffy” and rough, caused by
the wrinkling of skin, cavity
none or practically none; apex
flattened and frequently
depressed for a distance
of $\frac{1}{2}$ inch from stigmatic
point; surface varying
from smooth to rather
coarsely pitted, color at
present time from yellowish
green to greenish yellow,
sometimes deepening to orange
on one side, later in

the season the color becomes an orange self; skin $\frac{1}{8}$ to $\frac{1}{4}$ inch in thickness. Commonly thickest around the base the oil glands large abundant; segments 12 to 13, commonly 12, very extremely tender but some rather large, frequently $\frac{3}{4}$ in in diameter at center of fruit, usually filled in solidly with flesh; flesh light orange color, tender exceedingly juicy. Flavor never watery, always slightly subacid, with plenty of character, probably as good as the Bahia navel and with a little more acidity; quality very good; seeds extremely variable in number ranging from 1 to 20, but commonly about 12 perfect ones and 6 abortive or undeveloped ones. In

rather large, varying from $\frac{1}{2}$ to $\frac{3}{4}$ inch in length. Season is beginning now and will extend until October; probably could be called March 15 to Oct. 15, but the main season, when the majority of the fruits become fully ripe, is said to close June.

The orange impresses me as being almost superior to the Bahia navel in flavor, but its seeds are against it. It is notwithstanding, a very choice orange, in my opinion.

Rio de Janeiro Mar 24

Mangos

There are still a few mangos in the market among them I have seen 2 or 3 small lots of mangos da Rosa. Most of them are ordinary seedlings, green in color. Have seen no Espadas.

A tree here at the Hotel Bran Sejour is in full bloom tho I have not noticed many trees that were in this condition. They seem to be very irregular here in their time of blooming.

Karte von Süd-Amerika
aus Sohr-Borghaus'
Handatlas

838 55 "Saulan" Apr 1 1914

839

Budwood in Cool Room

Taken out at 2.45 pm.
and brought up to stateroom.

The package when
opened appeared to be
in perfect condition. A
few of the cloth labels
had begun to show
slight signs of mold, so
all were removed and
paper labels substituted.
The budwood felt cool
but not cold, and
the packing was still
sufficiently moist. No
moisture was added.

840

841

American Journal of
Tropical Diseases

Dec 2

New Orleans

Article on Diet in the Tropics
wh would interest McCarroll

Tuesday

Call for mail at Ymer

Buy Docs for Mrs Fawcett

Buy B/L

~~Write Dorsett~~

~~Get films~~

254

pull

board
write

Miss

Don Fox

Mrs Cantline

Aunt Lee

1. Bahia Mar 10. Man
with 2 bundles of Capim
d'Angola on mule. Stop 45.
Time $\frac{1}{2}$ sec.
2. Same as last.
3. Bahia Mar 10. View
across field of Capim
d'Angola, for and hill
covered with palms. Stop
64 - time $\frac{1}{2}$ sec.
4. Bahia Mar 10. Mule
load of Capim d'Angola
going into town.
5. Bahia Mar 10. Field
of Capim d'Angola from
gate back of Col. Barreto's

6. Bahia Mar 10. Close
view of Capim d'Angola
showing where it has
been cut. Stop 45. Time $\frac{1}{2}$ sec.

São Thomé
Banane da Terra

d'Agua

Prata

Maca

Pae Antonio

Ouro

Encarnada ou Roça

Alvobora

Branca

Maranhão

Kind of Bananas in
garden of Padre at
Matherby

Carlos S. Rutledge
statistician & journalist
corresp. ad interino for
"The London Times"

56 rua Silveira Martins

Rio
wants yearbook & finds
likely to be of interest
to him

Jose Maria Correa

Cezar Augusto Tenreiro
Rua Dr. Trompant
Maxambomba

Sacramento - P.
O. Vatapa

Marema, L.
Vatapa da Bahia

Ourobor, near G. Dias

Ponto de Petisqueiras

Elevador do Tabuaõ
Mangal
Retiro Centro Agrícola

Tap 1000
Coi 400

112. Primeiro de Março

M. Doves m. 5400
por Musis

A. Vassourinha
Conde de Luxemburgo

In Rio Janeiro

Pay Stevenson's bill
 Jabat-eala wine
 Photo of Ravenala
 Announcements for Fischer

National Hymn
 Carabos

Robber for Carabos
 Background

Discommodities
 Robber

Deceivers
 French Books for Herb

Dentist
 Lanport Stelt

7.30 Friday

Wax Paper

Mar. 9 1914
 Sent P30 ABA check
 No. A290618 for \$100.

March 12 1914. Bahia

Stamps 900 reis
 752 \$000 for
 £50 - on letter of credit

Steamer ticket \$150.00
 paid 504 \$000

ticket 480 \$000
 tax 570 24 \$000

Rio, Mar 21
 Drew 7 ABA checks
 of 20 each = \$140.00
 at 3116 to \$100

850

851

Some for letters:

Rezado Senhor:

Tenho o prazer de
lhe enviar algumas
photographias tiradas
em sua chácara ~~em~~ no
mez de Janeiro ^{proximo} passado,

esperando qu'ellas
lhe sejam de interesse.
sem crito. obdgo.
cri^{do} oba^{do}

Cabelluda

Flowers in June + Fruits in
2nd half of Sept + in Oct.
- Iavares

Gumixama

"Cherry of Brazil"
Fruits contain as many as
2 seeds.

Trees in one locality do
not all fruit at the same
time. Season Nov. to
Feb. + March.

3 vars. known, differing
in color of fruit. One kind
dark red, light red in
anthers, + white in the
third. All are found in
State of Rio, of Martins,
+ 2nd + 3rd also in Per-
nambuco. The color does
not refer to the skin, wh.
is always dark red, but
to the color of flesh. All
3 kinds have the same
flavor.

- Iavares

1. Peduncles of flowers and fruits
quite long. Indigenous to Minas. M. trunciflora Berg.
Peduncles short - - - - - 2

2. Leaves lanceolate, or ovate-lan-
ceolate, with the base obtuse.
Lobules of calyx ovate, obtuse,
ciliated. Indigenous to São
Paulo and Rio - - - - - M. gabotica Berg.

3. Leaves lanceolate, with the base
acute. Lobules of calyx lanceo-
late, acute, ciliated. Indigenous
to Rio and Minas - - - - - M. cauliflora Berg.

(over)

These characters only serve, however, to distinguish, with certainty, trees which spring up spontaneously in the *mattas*. Culture makes them vary considerably. Some varieties must have resulted from the crossing of these species.

Jaboticaba flowers even appear on roots which accidentally get above the soil.

Called "grapes of Brazil"

Temperature below 18°C . quickly scorches the foliage. The essential condition for fruiting is ~~humidity~~ moisture. When rain is lacking the trees are irrigated. By this means some of the fazendeiros of S. Paulo have *Jaboticabas* all the year round.

Large *Jaboticabas* sell at 8000 per kilo in Rio, the ordinary price of grapes.

-Tavares

S. Vauban Fri Apr 3 1914 ⁸⁵⁹

off Trinidad.

For the last hour we have been sailing along the ~~North~~ side of the island of Trinidad. We came up to the ~~South~~ East end of the island shortly after 1. We are a long way from shore, however, and can barely make out a small settlement nestled at the waters edge. The contour of the land is rough & mountainous, rather uniformly high all along the island, no central peak or peaks being more prominent than the others. There are numerous peaks of more, or less the same height. Everywhere the land seems to be densely covered with a luxuriant growth of vegetation. The water is full of flying fish though all we have seen are small.

The air is very hazy, &
a good many clouds are
hanging over the island
above the highest peaks
however. The sea is quite
warm.

At 4.30 pm we are in
the Boca de Huevos

Dois frutos do pay a mais conhecida
é o rego ananás, fruta tão boa
que a mesma natureza enamorada
quis como a rei engil-a de corôa
Tão grato cheiro dá, que uma lalhada
Surprende o olfacto de qualquer pessoa
Que a não ter do ananás distincto aviso
Fragrancia o cuidará do Paraíso.
— Santa Rita Duão, in Caramuru.

of the fruits of the country the one not praised
 as the regal ananas, a fruit so good
 that nature itself, enchanted
 wished to surmount it with a Kingly crown:
 so agreeable its perfume, that a single slice
 satisfies the olfactory sense of any one,
 that being ignorant of the ananas.
 We would imagine at the progress of Paradise

as frutas naturaes
 ultas ha infinitas, sendo
 primeira o abacaxi, que
 como a Rey de todos,
 e coroa a natureza
 com dradeng de suas
 mesmas folhas, as quaes
 em circulo lhe cingem a
 cabeça, e o rodeio de
 espinhos, que como
 guerreiros o guardão.
 S. de Rocha Pitta (His-
 toria da America Portuguesa)
 The cultivated indigenous
 fruit, there is an infinite
 number, the first of all
 being the ananas, which, like
 the king of them all, nature
 has crowned with a
 crown of its own leaves,
 which guard its head, and
 encircled it with spines,
 which guard it like soldiers.

O maior serviço que
se pode fazer a hum-
anidade he dota-la
com algum vegetal ou
animal util.

- Buffon

De Indiarum Utriusque
re naturali et medica

Guilielmi Pisonis
H. Amsterdam

(¹⁶⁵⁸Amstelredami)

D. Bois

15 rue Faidherbe

Saint-Mandé; Seine
France

Jumelle, Henri

Faculté des Sciences
Marseille

Piso, 1658. p. 121.

Jabuticaba.

Est arbor recta pro-
cera atque elegans
vastissimas ornata
ramis: fructum fert
cinerei coloris parem
magnitudine Lemoni
sucto dulci, tenui
pellicula instar uvae
bene maturae: qualis
tatis temperata, abun-
dantissima, salubris,
fecundissima. non
fert flores, sed
fructus in tuberculis,
ab una radice usque
ad summitatem ram-
orum ita per totam
arborem conjunctim
cateratimque exuber-
ant ut continuus
potius racemus, quam
arbor videatur.

Species quaedam
hujus arboritur in-
venitur in silvis
Pagi Tabugurana, sed
tractus fert minime
cum aliis comparandos.
Quibus Incasae ex-
primunt vinum deli-
catum & dulce: quod
visi statim ebibatur
statim fit, & in
cebum convertitur.
Hae arbor
in vastis silvis
Mediterraneis, & pre-
sente in Praese-
pitiis S. Vincentii teste
Manuele de Moraes:
non perfunctorie tam
legentem arborem in
silvis mediterraneis
invenierim.

Jaboticaba, Jabuticaba

Marc. 141. Myrciaria

Jaboticaba, Cauliflora

Berg et aliae. Jabotim =
testudo. quasi solum
testudinibus. Almost like
turtles suit

Jabuti vel Jabuti-iva.

(Amazonas) Rhipha laedig-
era Mart. cuius fructus
instar testudinibus

caricatus est. Corruptum
sonat jaboti, quod vide.

Martius, Wörterbuch
der brasilianischen
Sprachen, p. 397.

Leipzig 1867

Beiträge zur Ethnographie
und Sprachkunde
Amerikas zumal Brasil-
iens, Vol. II, Leipzig 1867

F-2519

M 38

Manas, su Piso p. 195.

De Arbore Mangifera

Manga Salutaris sic
rescit praedita succis,

etque intus flavas o-
stendit limpidas carnes,

et anasque Noces refo-
rent tostae ignae saporem,

vae fructus media fipae
conduntur in alo.

Piso. p. 95
(Jacobi Bontii)

Christophorus à Costa
p. 293.

Coloquios dos Simples
e Drogas. por Garcia d'Orta

Brom martinus:

Abacari, Abacari's, Abachio=
bi (acus), acsigoe (exclam-
tione feminarium dolentium,
iri exclamant: Acai!
manassa et aliae Brom-
liaciae.

Acaju, Acaju-iba,
Acaju-iba Psso Edit. I (1648)
Ed. II (1658) 120. Muregr.
Caju, Gracarium
occidentale Linn. Moue: Galibi;
aramon, Cuta, Ramon de
Sagra. Acaju significat
quoque annum (quia
indiani ejus frutescentia
annos frumet

Imbu, Imbu, Umbu.
condas tuberosa.

Anana' Theset 89 c 46
Lery 162. Marc. 33. Piso
#195. Ananasse Saturn
Lindl. Bromelia ananas
L. Vop non typica
licet in dialectum
vulgarem recepta. (The
term Anana is, I believe
eastern; the western
name of the fruit was
pan-folo-mie: Bryan
Edwards, Hist. of the
Brit. West Indies I, p 129

Caatinga, Catinga, i.e.
sylva alba, perducida,
desta aphylla.

Ca folium, planta
herba, fructus, arbor
lignum, baculum
(In dialecto Cami)

Guemixama, guemijana
(i.e. Curmexim - Cami
parvuli membra)
Stenocalyx brasiliensis
Bing Eugene L.

Piquia, Piqui, Piquichy
Cargocar brasiliensis
St. Hil

Pitanga. (a serbo ~~putor~~
sorbere et anga odor.

Sapucaia Lery. ed 1586. 155
Sopa-ocum, acaia,
Spondias, Lecythis.

Shamel's System of Scoring Trees & Fruits.

tree.

- (1) Date
- (2) Plot of grove Number
- (3) Tree Number
- (4) Original replant, renewed
- (5) Circ. of trunk 6 in from ground
- (6) Height
- (7) Habit of growth
- (8) Distance between trees
- (9) Height of head
- (10) Number of main branches
- (11) density of foliage
- (12) Color " "
- (13) shape of leaf
- (14) size " "
- (15) size & shape of petiole
- (16) number & size of thorns
- (17) number of June crop fruits
- (18) " " Dec. " "
- (19) " " total crop
- (20) variations of fruit
- (21) arrangement " " on tree
- (22) Color of Dec. fruits
- (23) size of navel
- (24) kinds of insect enemies

- (25) kinds of fungus diseases
- (26) amt mottled leaf
- (27) Extent injury from gummosis
- (28) kind & amt plant parasites
- (29) age of tree
- (30) depth of pine roots
- (31) kind of neighboring trees
other than cuttings
- (32) Amount of dead wood in tree

Fruit

- (1) Date
- (2) Variety
- (3) Source
- (4) Weight
- (5) Circumference
- (6) Diameter
- (7) Size of core
- (8) Thickness of skin
- (9) Shape of fruit
- (10) position end of fruit stem
or blossom end of fruit
- (11) color of skin
- (12) color of flesh
- (13) texture skin
- (14) markings
- (15) blemishes
- (16) Character of rag
- (17) flavor of juice
- (18) quality of juice
- (19) number of seeds
- (20) size + character of navel
- (21) size of navel opening
- (22) Amount of juice

Webber H. J. "New Citrus
& Pineapple Productions
of the Dept of Agriculture"
Yearbook 1906. p. 338.

"The experiments have
resulted in adding 9
smooth margined leaved
varieties to our list
where only one smooth
leaved sort, the smooth
cayenne, was known at
the time the experiments
were started. Since the
experiments were started,
however, a variation of
the Red Spanish has
gradually come into cul-
tivation which has nearly
smooth margined leaves.
Some of the leaves of
this variation are still
in pairs serrate, but
undoubtedly a purely
smooth leaved sort can
be established by the
selection of slips from
plants showing the

least indication of
spine development."

Speechly, Wm. "A Treatise
on the Culture of the
Pineapple & the Management
of the Hot-house" York,
1779.

4. "In the year 1768
I raised above 70 Pine
apple plants from some
seeds that were sent to
the Duke of Portland from
the West Indies, most of
which varied in some
distinctive circumstances,
either in their leaves, or
fruit."

Anon. "The Different Modes
of Cultivating the Pine-
Apple," etc London 1822.
Contains an account of
introduction & early history
in Europe.

Ananas abacaxi, variété
très répandue au Brésil,
fruit volumineux, bien
coloré, de bonne qualité
moyennement hâtif.
p. 285

Dybowski J. "Tratte
Pratigue de Cultures
Tropicales" Paris 1902.

Hobson-Jobson
by Col. Henry Yule &
Ar. C. Burnell. pp. 25-28.

Ananas:

Brazilian nana or
perhaps nanas, gave
the Portuguese Ananas
or Ananaz. This name
has, we believe, accom-
panied the fruit wherever
soever, except to England
it has travelled from its
home in America.

Stated to have been first
cultivated in Europe at
Leyden about 1650 (?).

Term "pineapple" was good
English long before the
discovery of America being
applied to a pine cone!

Following extract from
Oviedo's Historia de las
Indias 1535; quoted
from Ramusio's Italiani;
(name pira in fr. (signa in st.))

There are in this land
of Spaguolo certain
thistles, each of which
bears a Pigna, and
this is one of the most
beautiful fruits that I
have seen. . . . It has
all these qualities in
combination, viz., beauty
of aspect, fragrance of
colour, and exquisite
flavor. The Christians
gave it the name it
bears (Pigna) because it
is, in a manner, like
that. But the pine
apples of the Indies are
much more beautiful
than the pigne (i.e. pine
cones) of Europe, and
have nothing of that
hardness of thorns seen
in Castile, which are
in fact nothing but wood.
-Ramusio, iii, f. 135 v.

In Prof. Rawlinson's
Ancient Assyria (i. 578)
of Monarchies (i. 578),
it is stated in reference to
ancient Assyria, "Fruits
were highly prized; among
these, of most repute
were pomegranates,
grapes, citrons, and
apparently pineapples."
Footnote adds: "The
representation is so exact
that I can hardly doubt
the pineapple being what
it did." M. Layard expresses
himself on this point with
some hesitation (Nineveh
and Babylon, p. 338) ?

